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## ORIGINAL ARTICLES

### OBSERVATIONS ON THE ADMINISTRATION OF DOCHEZ'S ANTI-SCARLATINAL SERUM (SCARLATINAL ANTITOXIN) INTRAVENOUSLY. A PRELIMINARY REPORT

BY C. L. THENEBE, M.D., HARTFORD, CONN.

THROUGH the kindness and generosity of Dr. A. R. Dochez, I was enabled to administer Dochez's serum to some of the patients admitted to the Hartford Isolation Hospital, the results of which are tabulated.

#### DISCUSSION

All the above cases treated with Dochez's anti-scarlatinal serum were treated by the intravenous method of administration excepting Case No. 4521, which was treated by the intramuscular method of administration. Only 2 of the patients complained of a chilly sensation during or after the injection. None developed a frank chill. There was no rise in temperature in any case after the administration of the serum, the above 2 cases excepted who developed the chilly sensation. No skin test was done to determine individual sensitivity to horse serum prior to the serum administration because in none was there a history of prior injection of horse serum, asthma, hay fever, urticaria, etc. Only 4 of the 22 patients upon whom serum was used, developed a serum rash. Unconcentrated serum was administered.

It is logical reasoning in my estimation to believe that a smaller dose of Dochez's serum will be required when administered intravenously rather than intramuscularly. The same of course holds good in the administration of diphtheria antitoxin. By giving Dochez's serum by the intravenous method, immediate maximum concentration of antitoxin in the blood stream is obtained. This factor of course is desirable in all cases, particularly those representing moderately to severely toxic and septicemic types of disease.

The above reported cases will demonstrate that Dochez's serum can be administered effectually by using small doses intravenously. The usual drop in temperature and the rash fading occur. The rash starts to fade with the neutralization of toxin but remnants of the

faded rash remain for 1 to 4 days after temperature is normal, in the usual case.

The incidence of complications and sequelae in my opinion seem to be lessened by the administration of Dochez's serum. However, complications develop after serum administration. I do not feel that additional doses of serum will affect materially the progress of complications after the complications are well advanced. The reason for this may be explained in the fact that there is an additional focal infection present secondary to the original one (the original one being in the great majority of cases the naso pharynx), before the serum is administered. For instance there is an early cervical adenitis or an early otitis media present before the serum administration. I have yet to see a patient who does not show reddened tympani early during the course of the disease and surely the great majority of the cases present palpable cervical glands. The deep cervical glands are often involved and are not palpable at the time of the primary examination. I have also observed arthritis very early during the course of the disease. It seems that a further extension of the simple inflammatory process may be averted by an early adequate dose of Dochez's serum which neutralizes the toxin and thus permits the immunizing forces of the body to concentrate upon combating any further extension. The highly probable bactericidal substance present in the serum should also act as a further measure in preventing extension of a simple inflammatory process. If the inflammatory process is well advanced and this same process could represent a mixed infection, i. e., suppurative adenitis or mastoiditis, one would not expect the process to be affected by additional serum. A secondary rise in temperature after the initial fall usually denotes the presence of an active inflammatory process in the nature of a complication.

The patient who presents a streptococcic bac-

teremia may and may not be benefited by the administration of Dochez's serum, but the same should be used in large doses as there is cer-

serum or any measure would act specifically upon a patient presenting multiple foci would be presuming too much. There are many cases

No.	Age	Sex	Day of Disease	Temp.	Toxemia	Ant. of Serum	Temp. Normal	Result	Bash disappeared	Remarks & Complications
4521	26	M	4	104°	Extreme	40 cc.		Death	Did not	Streptococci bacteremia, nephritis, endocarditis,
4530	13	F	4	102.2	Moderate	None	17th d.	Recovery	8th day	Bilateral otitis media, adenitis.
4655	11	W	3	101.4	Mild	10 cc.	12 hrs.	Recovery	2nd day	Unilateral otitis media.
4606	10	F	9	101.2	Mild	None	2nd d.	Recovery	18th day	Arthritis
4607	38	M	4	104.2	Moderate	15 cc.	12 hrs.	Recovery	3rd day	None
4610	9	F	5	101.2	Mild	None	8th d.	Recovery	8th day	None
4611	10	M	4	103.2	Moderate	10 cc.	24 hrs.	Recovery	2nd day	None
4608	7	F	2	102.2	Mild	None	3rd d.	Recovery	3rd day	None
4615	29	M	2	101.4	Mild	10 cc.	12 hrs.	Recovery	2nd day	Adenitis started 3rd d. after admis. Sec. rise to 101. Serum rash.
4677	7	F	3	101.2	Mild	None	13th d.	Recovery	6th day	Adenitis 6th day. T. 98.8 to 102 for 13 d.
4635	10	M	2	101.	Wild	10 cc.	12 hrs.	Recovery	24 hrs.	None
4627	40	F	4	104.2	Severe	10 cc.	12 hrs.	Recovery	3rd day	Drop of 104.2 to 98. in 12 hrs. Secondary rise to 102. during next 3 days following.
4619	6	W	3	100.4	Mild	None	7th d.	Recovery	7th day	Adenitis, otitis media.
4644	19	M	2	104.2	Severe	10 cc.	12 hrs.	Recovery	2nd day	Drop of 104.2 to 98. in 12 hrs. Secondary rise to 102. during next 3 days. Extensive burns on admiss.
4620	8	F	4	100.8	Mild	None	6th d.	Recovery	6th day	Adenitis.
4632	29	M	4	105.4	Severe	10 cc.	12 hrs.	Recovery	3rd day	Suppurative adenitis Secondary rise to 102.8 T. finally settled 27th day.
4553	8	M	2	104.	Moderate	None	6th d.	Recovery	7th d.	Adenitis. Paronychia.
4646	6	P	2	103.8	Moderate	10 cc.	12 hrs.	Recovery	2nd d.	Infected finger.

tainly no nearer specific than this serum. An attempt should be made to localize the focus or foci of infection which supplies streptococci to the blood stream in these patients. There may be any number of these foci after the initial blood stream invasion. To believe that Dochez's

on record where a bacteremia was present which have recovered. Case No. 4735 is an excellent example of the same. In this case the focus was apparently an ethmoidal sinusitis and here again apparently a single focus rather than multiple foci. With the subsidence of

the sinusitis the source of supply of streptococci to the blood stream was obliterated. The patient should be given the benefit of Dochez's serum administered in large doses in order to combat toxemia and to permit the very proba-

(2) The toxemia accompanying scarlet fever can be combated effectually by the administration of serum intravenously in smaller doses than is usually administered intramuscularly. toxic and septicemic types of disease.

No.	Age	Sex	Day of Disease	Temp.	Toxemia	Ant. of Serum	Temp. Normal	Result	Rash disappeared	Remarks & Complications
4556	26	P	2	102.2	Mild	None	4th d.	Recovery	4th d.	Adenitis. Recurrence sore throat 6th day after admission.
4684	8	P	3	105.4	Moderate	10 cc.	96 hrs.	Recovery	48 hrs.	Serum rash 5th d. after admission.
4559	7	M	5	102.6	Moderate	None	12th d.	Recovery	7th d.	Conjunctivitis, edema eye lld; bilateral otitis.
4630	20	P	5	104.4	Severe	12 cc.	12 hrs.	Recovery	3rd day	104.4 to 101.4 in 12 hrs. See rise followed. T. normal 20th day. Pneumonia on admission. Adenitis; quinsy. Infected finger.
4534	10	M	2	101.4	Mild	None	6th d.	Recovery	5th day	
4638	24	P	2	104.4	Moderate	15 cc.	12 hrs.	Recovery	2nd day	Drop 104.4 to 100 in 12 hrs. Rise of 2 degrees during next 24 hrs. Adenitis, sinusitis, serum rash.
4541	10	M	2	105.	Moderate	None	8th d.	Recovery	6th day	Adenitis.
4649	17	P	4	104.4	Moderate	15 cc.	12 hrs.	Recovery	2nd day	104.4 to 99.6 aft. 12 hrs. See rise. Normal 11th d. Arthritis on admission. Otitis media.
4533	11	P	4	101.0	Mild	None	10th d.	Recovery	8th d.	None.
4684	45	M	3	103.4	Extreme	57 cc.	Did not Death		5th d.	Streptococcal bacteremia. Malignant endocarditis, meningitis, pneumonia, nephritis. (Autopsy). Death on 22nd day.
4551	6	M	4	102.4	Moderate	None	20th d.	Recovery	8th day	Adenitis, otitis media, sechratitis.
4715	2	M	7	106.	Extreme	10 cc.	Death			Streptococcal bacteremia, pneumonia, sinusitis, endocarditis, nephritis. Death 12 hrs. after hospital admission.
4586	10	P	5	102.4	Mild	None	10th d.	Recovery	9th d.	None

ble bactericidal properties of the serum to functionate.

#### SUMMARY

(1) Confirmation of the clinical results obtained by Dr. F. J. Blake, in that antiscarlatinal serum is a valuable therapeutic agent in the treatment of scarlet fever.

(3) The intravenous administration of serum affords maximum immediate concentration of antitoxin in the blood stream; its use being indicated in the moderate to severely

(4) It has been used without undesirable and untoward effects and therefore would be a safe procedure.

(5) The incidence of complications may be more than by any other present method of procedure lessened by its administration.

No.	Age	Sex	Day of Disease	Temp.	Toxemia	Amt. of Serum	Temp. Normal	Result	Rash disappeared	Remarks & Complications
4682	19	F	3	103.2	Moderate	None	5th d.	Recovery	5th day	A. strep. tonsillitis 18th d. of disease.
4719	12	F	5	104.2	Severe	20 cc.	6 hrs.	Recovery	3rd day	None.
4678	17	F	3	101.8	Mild	None	13th d.	Recovery	6th day	Otitis media.
4747	10	M	4	102.4	Mild	12 cc.	12 hrs.	Recovery	2nd day	None.
4579	8	P	4	101.2	Mild	None	6th d.	Recovery	6th day	Otitis media.
4705	9	M	3	103.4	Severe	12 cc.	12 hrs.	Recovery	3rd day	Fall 4.6 degrees in 12 hrs. Delirious otitis, conjunctivitis
4706	33	F	2	101.4	Mild	10 cc.				Mastoiditis on admission.
4729	20	F	3	103.2	Moderate	18 cc.	10th d.	Recovery	3rd day	103.2 to 101 in 12 hrs. 99 to 100 during next 10 days. Severe polyarthritis on admission.
4735	18	F	7	105	Extreme	150 cc.	14th d.	Recovery	10th day	Streptococcal bacteremia, nephritis ethmoidal sinusitis Temperature normal 14th day.

(6) The patients presenting a streptococcus hemolyticus bacteremia should be benefited

## REFERENCE

1 Blake, F. G.: B. M. and S. Jour., July 10, 1924, p. 44.

The patients not treated with Dochez's serum were merely added for comparison. The time of rash disappearance as noted on the chart in patients treated with Dochez's serum was computed from the time the serum was given until the rash disappeared. In those not treated with serum the time of rash disappearance was computed from the day of hospital admission to the date of disappearance. The day the temperature became normal in patients treated with serum was noted from the day of hospital admission to the date of disappearance. In those not treated with serum was noted from the day of hospital admission to the time the temperature reached normal. Dochez's serum was given slowly and undiluted. Adrenalin chloride was added to the first few intravenous injections of serum administered but was abandoned because of the development of cardiac palpitation and a sensation of fear by the patient. 15 of the 22 patients to whom serum was given showed exudate on one or both tonsils.

## CONVALESCENCE, VIII: NOTES ON CONVALESCENT WORK IN THE U. S. ARMY

BY JOHN BRYANT, M. D., BOSTON

### I. INTRODUCTION

THE notes which follow record certain activities of the writer during seventeen months of service in the U. S. Army, in the period from December, 1917, to June, 1919. This service was almost exclusively concerned with various phases of work having as an objective, improvement in the care being given the convalescent patient. The notes themselves, having been put together substantially in their present form for submission in connection with a report filed with the Executive Committee of a large civil hospital early in 1920, were obviously written before the memory for details of the work and the clearness of the impressions gained, could have become unduly dulled by an excess of intervening years. On the other hand, five years having now elapsed between the date of the original preparation of these notes, and their presentation herewith, there has perhaps been acquired with regard to their subject matter, a degree of perspective which might have been lacking, had the notes been published immediately upon their completion, in 1920.

It is only in war time, as W. S. Thayer has pointed out, that the value of convalescent care is seen in its proper perspective. Thus Thayer, speaking as Chief Medical Consultant for the A. E. F., has stated that "apart from the fundamental question of diagnosis, the medical man was confronted by two problems; prophylaxis, and his duty to the patient during convalescence."

A little something did get done about Reconstruction and Convalescent Care in our Army. Yet, with one important exception (Bridgman; *Arch. Int. Med.* 1919, XXIV, 65), there has become available almost no literature upon the subject of convalescent care in the Army.

From present indications, recent Army work in this direction will soon have been overtaken by the same fate which befell the work of Da Costa and others during the Civil War. In a word, it will have been forgotten, to be rediscovered rather late in the next war.

The writer was fortunate enough to have been brought in contact with varying aspects of Army convalescent work. Thus, he took part in active ward work, and later organized and conducted a Convalescent Department in a General Hospital carrying about 2000 patients. Thereafter he was assigned to special investigating and inspection work, by the Division of Internal Medicine, S. G. O. Subsequently, as Field Consultant, he was in a position to influence the application of the policies of the Division of Reconstruction, S. G. O., in the Northeastern hospital

area. This area then carried in its hospitals (total capacity approximately 20,000 beds) some 14,000 patients. The period of service as Field Consultant to the Division of Reconstruction, S. G. O., included the period of the peak load of the return of the wounded from France, at which time there was in the Army hospitals within the United States, a maximum of 74,946 patients.

In view of the above rather varied opportunities for work and observation, and in view of the absence in the literature of any available comprehensive review of Army convalescent work as conducted in the United States, it has seemed desirable to record those aspects of this work personally known to the writer, in the hope that even in small measure some benefit may thereby eventually result to the peace-time armies of the convalescents and the half-cured everywhere to be found today within and without our civil hospitals.

### II. CONVALESCENT WORK AT BASE HOSPITAL, CAMP GRANT

For the first four months of 1918, before organized Convalescent work had appeared in our Army, the writer was concerned with the care of general medical patients. Originally offered a commission as Gastro-enterologist, it seemed that, except for the subject of intestinal parasites, there was comparatively little Gastro-enterological work at the Base Hospital during the period in question. The writer therefore worked for the greater part of these four months in the general medical wards. During one emergency, when there was an epidemic of measles in the Camp, and while cross-infection was causing great disturbance in the wards, the writer, at the suggestion of Dr. J. A. Capps, worked out many details of the use on patients of the gauze face mask as a preventive of cross-infection. Most of these details were utilized by Capps (*Jour. Am. Med. Assn.* 1918, LXXI, 448), in his recommendation for the use of gauze masks by patients (in addition to their use by the staff), for the purpose of preventing cross-infection in hospital wards.

During the progress of this work, there were large numbers of otherwise healthy patients in the wards, who were merely awaiting the expiration of the quarantine period before being discharged to full duty after their measles attacks. These patients were naturally exceedingly restless. It was at this time that the writer became actively interested in the details of keeping ward patients thoroughly well occupied, both mentally

and physically. From the points of view both of hospital discipline, and of prompt recovery of the patients, the results obtained were decidedly satisfactory. This was in contrast to the results being obtained in adjacent wards where measles or other post-infectious patients were not similarly occupied.

Thus, in the adjoining wards, it was very difficult to maintain order for a half hour before and after lights were ordered out, at nine P. M. My patients were however glad to retire quietly to bed by 8:30 P. M. In fact, almost without exception they were sound asleep before the lights were even put out.

The positive advantages of a special slow type of exercise employed, and its usefulness in facilitating convalescence, may be suggested by the case of an English Army sergeant detailed to Camp Grant as sniping instructor. This sergeant was short in stature but of powerful physique. He had been invalidated to this country on account of severe rheumatism. As a result of exposure, he had a return of his rheumatism. It was for four days sufficiently acute so that he required large amounts of morphine for relief of pain. At the end of a month, he was free from pain, but could walk only with great difficulty. He had been anxious to join in the ward exercises for some days. When allowed to do so, he was at first so stiff and weak that he could hardly perform any movement completely. Four days later, he was sufficiently limbered up so that he could run the length of the ward. Two days later he was discharged, according to his story, in better health than before his attack of rheumatism.

In April, 1918, transfer was requested from the Base Hospital, Camp Grant, to some point where the writer could be more exclusively engaged in Convalescent work. The consequence of this request was immediate transfer to the Walter Reed General Hospital.

### III. CONVALESCENT WORK AT THE WALTER REED GENERAL HOSPITAL

Immediately after reporting for duty at the Walter Reed General Hospital, with the enthusiastic coöperation of the Commanding Officer, and of Major Randolph, then Chief of the Medical Service, the writer organized and for some months conducted a Medical Convalescent Service; this operated nominally within the jurisdiction of the larger Medical Service, but practically as an independent unit.

The usefulness of this Convalescent Service became sufficiently evident so that it was given official recognition by the Commanding Officer, under the title of Special Convalescent Service, in a General Order of July 17, 1918, which specified the class of cases to be referred to it. This Service continued active under the title of Special Convalescent Service until September nine-

teenth, when, as a result of a reorganization of the medical services at the Hospital (G. O. No. 55), the Special Convalescent Service became the Convalescent Department. The Convalescent Department continued active during the earlier part of the influenza epidemic, and until the writer was ordered to detached duty for the purpose of investigating the care being given chronic medical patients in other Army Hospitals.

An independent opinion as to the functioning of this Convalescent Department is available, in the form of a letter, under date of May 10, 1918, from former Major Randolph, to Dr. Richard Cabot. The following paragraphs from this letter are quoted by consent of Dr. Randolph.

#### Subject: Hospital Treatment of Convalescents.

Major John Bryant has requested me as an independent observer to give you my impressions of the value of the work instituted and carried out by him at the Walter Reed Hospital as Chief of the Convalescent Section, with especial reference to its availability in civil hospitals. I take great pleasure in complying with his request, since he was the means of successfully solving, in the Service of which I was Chief, a perennial hospital problem, one which, at the time of his assignment to duty at the Walter Reed Hospital, had become the chief concern with which I had to deal.

Following the operation of the draft, a constantly increasing factor in our work was the treatment and disposition of subnormal and chronic individuals. These came to us either as straight out defectives, or were admitted with maladies of temporary character from which they did not make normal recoveries. To these were added the inevitable complement of those whose active treatment under the admission diagnosis had been complete, yet who did not progress to complete convalescence. The assignment of Major Bryant, a man who had specialized in the management of chronic invalids, furnished the means of taking hold of the problem in a concrete fashion. After a short experimental period, the Convalescent Section of the Medical Service was made an integral part of the Hospital Organization. The material referred to it was collected into separate wards, and systematically studied, classified and treated along the lines worked out by Major Bryant.

Without elaborating, it can be stated that the work of this section was most efficient and satisfactory during its period of operation. In addition, it served as a valuable check upon the thoroughness of the work in other departments. The results may be summarized as follows:

1. Prompt orientation of each case transferred to the section, so that its prognosis could be stated, and its future requirements determined.
2. Shortening of the stay in the hospital, so that the hospital facilities could be employed to a greater extent for the acutely ill.
3. Elimination of the prevailing "dead" period between the completion of active medical or surgical treatment and the time of fitness for duty.
4. Shortening the convalescent period by constructive therapeutic procedures, and at the same time effecting a more complete restoration.
5. Returning to proper Service, for further treatment of disabilities whose presence had been overlooked.

I am strongly of the opinion that this method is needed in civil hospitals, both from the standpoint of efficiency and of public economy. There can be no dispute that every large general hospital carries

a very definite proportion of patients whose treatment is more or less neglected. If a system is offered by which the progress of such patients is continually furthered, the benefit from both the therapeutic and the economic points of view is obvious. It is to be noted that the method does not increase the number of beds. It is a rearrangement rather than an extra department. With us the increase in equipment and personnel was trivial, and was more than compensated for by the results obtained. I believe, also, that it is an advantage to have such a department within the active hospital itself, as its value as a coördinate part is important.

I could elaborate on the points suggested by what I have said, but I do not feel that it is necessary. Major Bryant's experiment at the Walter Reed Hospital has, in my opinion, demonstrated a successful method of dealing with a situation that constitutes a legitimate ground for criticism of our profession, both in hospital and private practice; and one which contributes largely to the prosperity of quacks. I feel that it is the one original contribution made to medical progress during the war by the Medical Service of the Walter Reed Hospital.

(Signed) B. M. RANDOLPH.

A brief outline of some of the activities of this Convalescent Service is provided in the report which follows. This report was submitted by direction, as one detail of the Hospital work to be contributed to the Medical History of the War.

#### WALTER REED GENERAL HOSPITAL

Report on Convalescent Work, May 1st to October 15th, 1918

Convalescent work as a definite entity was begun at the Walter Reed General Hospital about May 1, 1918, by Major (then Captain) John Bryant, shortly after his assignment to this post for duty, and in continuation of work previously carried on by him.

Ward G, now Ward 13, was first occupied. Among the earlier patients were a considerable number of "irritable heart" cases. Owing to the uncertainty clouding their treatment, first-hand knowledge was desired before resorting to exercises. Hourly pulse charts were run on all patients in the ward for one month. It was established that the pulse rate did not react excessively to reasonable exercise. In fact, a much greater variation was caused by the simple change in posture from bed to standing, on arising in the morning; the pulse then remained at a level distinctly high throughout the day, and returned to a low level (60-70) after the patient had gone to bed at night. The most extreme variations were invariably associated with emotional upsets.

Once the safety of exercise was established, a formal garden adjoining the ward was designed by the officer in charge. In one week (early in June) it was laid out, dug, fertilized and planted, entirely by the morning labor of the patients on the ward; during this period there was ample opportunity to prove that the heart cases not only could do, but enjoyed doing pick and shovel work for short periods of time. Transient dyspnoea, increased precordial pain, and fatigue were observed; but there were no lasting ill effects. On the contrary, the work often seemed to provide an outlet for the emotional crises always associated with the most marked variations in heart action. There was, however, ample opportunity to demonstrate that these cases are not front line material; in fact, they have all been sent to Domestic Duty or Discharged.

The week following the making of the garden was occupied by the creation of a small playground on the other side of the ward. Provision was made for pitching quoits, tether ball, croquet, bowling, ten-

nis, and indoor baseball, the necessary equipment being obtained through the personal efforts of the officer in charge. Of these, quoits, tether ball, indoor baseball and volley ball have proven the most useful and also the most popular, with volley ball distinctly in the lead for the class of patients under consideration. The medicine ball and simple running games have, of course, also been useful.

Previous work by the officer in charge had proven the routine heavy hospital diet deleterious to the cardiacs, the chronic arthritics, and the chronic gastro-intestinal cases. Light diet was made routine for all patients under observation. Results were not satisfactory. The light diet was found to consist of clear soups, cereals, eggs and bread and milk. As a result of personal investigation the light diet was modified, and it has been used exclusively, with excellent results.

Official recognition was taken of the Convalescent work, by the establishment on July 17th, through G. O. No. 39, W. R. G. H., of the Special Convalescent Service. This order outlined the class of cases acceptable. In August between 50 and 60 cases were being cared for in Wards 12 and 13, and by this time a complete daily schedule had been put in effect, so that the patients were occupied the greater part of the time from 6 A. M. to 5 P. M. Discipline, play, and exercise ensuring physical development were provided for, and, in addition, two hours daily were devoted to mental occupation, largely in the form of grammar school work under the auspices of the Educational Department. In this connection, it is desired to express appreciation of the opportunities provided and the spirit of cooperation shown by the members of this Department under the leadership of Major Baldwin.

The rapidity with which academic and technical knowledge has been acquired by patients to whom opportunities for education had previously been denied, the eagerness and gratitude of the patients, and the demonstrated possibility of creating a skilled worker from a patient with no previous special qualifications, during the course of, and with benefit to rather than interference with the course of medical treatment of a chronic condition, thus injecting education as a by-product of medical treatment, has been one of the most substantially satisfactory results of the entire experiment.

All patients out of bed were and are required to go to the Educational Department between the hours of 1 and 3 P. M. The kind of work undertaken is left to the patient and the instructor. It is well here to point out that the more men who have had the opportunity for education in hospital before going to France, the easier it will be to interest men in reconstruction on their return from France.

There has been left no room for doubt that both the physical and mental improvement of the men has been more marked in proportion as they have been profitably employed at school in bettering their status educationally.

In addition to routine fitting of invalids for duty, two other aspects of the work have proven interesting. The first is the method of separating out the element of mild malingering in a given case not progressing normally, by indirect observation of the patient during his hours of work and play, when for the most part observation is not suspected by the patient.

The second point of interest, is the way in which the Convalescent Service has acted as a check upon the work of the medical services. It is obvious that some check is needed, when out of the first 100 dispositions there were 32 retractions to other services for treatment of overlooked pathology. The amount of additional investigation undertaken is evidenced by the fact that in a ten-day period late in August, there were 200 calls to special examinations for patients in Ward 13.

One result of this demonstration was the publica-

tion of Memo. 43, W. R. G. H., September 7th, requiring a diagnostic survey by ward surgeons of all cases remaining in hospital two weeks or more.

On September 19th, as a result of the reorganization of the Medical Services under G. O. 55, W. R. G. H., the Special Convalescent Service became the Convalescent Department. Shortly thereafter its location was changed, and at the present time this Department is in a state of metamorphosis in wards and grounds still in process of completion. During the past week there have been from 150 to 200 patients, mostly influenza cases, on this service.

JOHN BRYANT, Major M. C.,  
*Director, Convalescent Department.*  
December 14, 1918.

Diet, adequately controlled, proved to be one item fundamentally important to the successful conduct of this Convalescent Service. On the basis of previous gastro-enterological experiences of the writer, the diet being provided at the Hospital was considered unfavorable for convalescent patients. A special diet was arranged, and thereafter used with considerable satisfaction on the Convalescent Service. This diet proved in fact sufficiently satisfactory so that it was later adopted, with only slight modification, as the general Hospital Diet.

A brief report upon the dietary changes made by the writer, was also required for the elaboration of the Hospital's contribution to the Medical History of the War. A copy of this report upon diet follows; likewise, a copy of the Hospital Memorandum of October 5, 1918, establishing this diet (modified later by the addition of meat daily at noon) as Hospital Diet for all patients.

Great difficulty was at first experienced in having this diet properly cooked and served. When properly cooked and served, there was never serious objection from any patient, and there never was any complaint of shortage of food. It is understood however that shortly after the writer was relieved of active duty at the Walter Reed, the pressure exerted by friends of patients was sufficient so that the customary high meat diet soon replaced the Hospital Diet recommended in the above-mentioned memorandum of October fifth.

WALTER REED GENERAL HOSPITAL  
*Report on Dietary Changes, May 1st to October 15th,  
1918*

During the month of May, in the conduct of Convalescent work, it was found by Major (then Captain) John Bryant that the chronic intestinal cases under his care did not recover as promptly as this officer, on the basis of previous experience, had expected that they would. These cases and all other cases in the convalescent ward were getting routine light diet. This was investigated. It was found to consist of cereals, clear soups, eggs (mostly cold hard boiled, or scrambled), bread and butter. Obviously this diet could be improved.

A suitable diet was arranged for and ordered, and on July 6th by Memo. W. R. G. H. it was made official "Soft Diet." It required several weeks of effort before the quality and finish of the food became satisfactory, but thereafter no complaints concerning

diet were heard, notwithstanding the fact that these convalescent patients were doing more physical work than any other patients in the hospital. Food was at this time served on the convalescent wards.

On account of the transfer of the Convalescent Department to new and unfinished wards it was necessary that the patients should go to the general mess. With the change from the above "Soft Diet" to routine hospital diet with three meals daily of eggs or meat, there was an immediate increase in digestive disorders of these patients.

Within 48 hours every nurse on duty reported with astonishment a sudden and almost universal demand for cathartics, a demand which had scarcely been heard in the preceding two months during which the patients had been given the "Soft Diet."

This was considered sufficient reason for bringing the attention of the Commanding Officer to the condition of the Dietary in the Hospital. There resulted S. O. 269, W. R. G. H., October 3rd, 1918. The board authorized to investigate the Dietary met and as their recommendation advised the adoption of the above "Soft Diet," practically without change, for all patients except those on liquid or special diets, under the name of HOSPITAL DIET. This action was taken on the ground that men sedentary in hospital are harmed rather than helped by a high meat diet.

This Hospital Diet has now been in use about two weeks. It is giving satisfaction, and causing few complaints. Most of the patients prefer it, and the mess officer states that he is giving more liberal portions in spite of the fact that on the basis of 2000 patients he is saving about \$40.00 daily to the Hospital. There are two prerequisites to success in the use of this diet: reasonable care must be used in making out the weekly menu; and all food must be inspected with regard to quality, thorough cooking, and proper finish before serving, to insure palatability and flavor.

JOHN BRYANT, Major, M. C.,  
*Director, Convalescent Department.*  
October 15th, 1918.

WALTER REED GENERAL HOSPITAL  
Takoma Park, D. C.  
Special Orders No. 269. October 3rd, 1918.

#### Extract

8. A Board of Officers is hereby appointed to investigate the diet of patients in the Main Hall, and to make such recommendations for its improvement as may seem advisable.

The Board of Officers as appointed in par. 8, S. O. 269, of this Hospital, October 3rd, 1918, met at 11 A. M., October 4th, 1918, and after investigation and consideration of the diet of patients at this Hospital, makes the following recommendations:

1. That the diet for all enlisted patients except those on liquid or special diet shall be known as HOSPITAL DIET and shall consist of the following articles of food:

*Breakfast:* Stewed fruit, cereal, butter, toast and coffee. (Bacon or substitute added for winter.)

*Dinner:* Thick soup, meat, 1 starch food, 1 protein vegetable, 1 green vegetable, dessert, butter, crackers and coffee.

*Supper:* 1 protein vegetable, 1 starch food, 1 green vegetable, pudding, jam or jelly, bread, butter and tea.

2. That patients on hospital diet served in wards will not receive milk, sugar, butter, crackers and bread, unless these supplies are requisitioned on the blank form furnished for the purpose; the allowance on requisitions is as follows:

Milk: 1 pt. for each patient.

Sugar: 3 ozs. for each patient.

Butter: 1 1/6 ozs. for each patient.  
Crackers: 1 lb. for each 3 patients.  
Bread: 1 lb. for each 6 patients.

3. That the menu for the hospital diet for one week in advance shall be filed in each ward office. This menu shall be consulted by the ward surgeon in the preparation of special diet and the mess department notified in advance whenever it is desirable to eliminate items from the diet as listed.

4. That patients on liquid diets will be allowed 1 quart of milk and 2 eggs daily from the mess store room on requisition. Broth will be kept on hand in the main kitchen for patients on liquid diet. This may be obtained throughout the day as desired by the ward surgeon.

5. That the ward surgeon will be held personally responsible for the diet and storeroom requisitions. They will be signed by the ward surgeon as required by the Manual for the Medical Department and submitted to the mess department before 9.30 A. M.

6. That ward surgeons and head nurses will be responsible for any waste of food. They will require the return of all food fit for further use to the kitchen.

CHARLES A. RAGAN: Lieut.-Colonel, M. C., U. S. A., Ret.  
JOHN BRYANT: Major, M. C., U. S. A.  
LUTHER C. COPELEY: 2nd Lieutenant, S. C., U. S. A.

*Approved:* With the following modifications; October 7th, 1918.

Paragraph 2:

Sugar: 1 1/2 ozs. for each patient.  
Butter: 1 oz. to each patient.  
Crackers (Hardtack): 1 lb. for each 3 patients.  
Bread: 1 lb. for each 3 patients.

E. R. SCHREINER,

*Colonel, Medical Corps, U. S. A., Commanding.*

The subject of diet has been referred to at some length, as being a basic factor in promoting the recovery of convalescent patients. There is serious doubt as to the necessity for providing the patient convalescent in hospital with a heavy meat diet. Certainly during the writer's experience at the Walter Reed General Hospital, the use of a heavy diet was proven actually harmful. The question if a convalescent patient can obtain sufficient calories per day upon the diet utilized by the writer, is solved by not restricting the total quantity of the actual foods allowed by this controlled diet. The menus offered were easily capable of providing 3000 calories per day. One arthritic patient not only gained fifteen pounds in three weeks upon this diet, but showed marked improvement in his general condition. It is therefore obvious that if a patient has a normal appetite, the diet is adequate.

It was further proven that many patients found it pleasanter to continue to live in hospital, than to live outside. The tendency in this direction was to some extent discouraged, without the slightest detriment to health, by the special diet provided.

The actual living details of the convalescent patients having been arranged, it soon became obvious in practice that many patients referred to the Convalescent Service were suffering from inadequate medical attention. Consequently,

the Convalescent Service was forced to act as a check upon the work of the other medical services. It is obvious that some check was needed, when out of the first one hundred dispositions from the Convalescent Service, there were thirty-two retransfers to other services for treatment of overlooked pathology, with 10% of the total dispositions exclusively to the Neuro-psychiatric Service.

The amount of additional medical investigation sponsored by the Convalescent Service in its desire to promote the health of its patients may be evidenced by the fact that in one ten-day period late in August, during which a count was made, there were two hundred calls to special examinations for the patients in that ward of the Convalescent Service in which the question of medical diagnosis was reviewed.

In general, the objectives of this medical Convalescent Service were stated to be as follows:

1. To weed out the unfit.
2. To speed up the disposition of doubtful cases.
3. To speed up normal recovery.
4. To bridge the present gap in treatment from acute illness to full duty or Convalescent Camp status.
5. To provide close control of Sub-acute Convalescence until such time as the patient is considered fit to leave hospital for duty or Convalescent Camp.

The classes of patients acceptable on the Convalescent Service were outlined as follows in a General Order of July seventeenth:

- A. Post infectious, (serious).
- \*B. Post operative (serious).
- C. Hyposthenic.
  - (1) Neurasthenic.
  - (2) Circulatory.
  - (3) Gastro-intestinal.
  - (4) Orthopedic.

In this General Order, it was necessary to state that a suitable case would be transferred only after the completion of active medical and surgical treatment, and after consultation between the Chief of Service from which the patient was to be transferred, and the officer in charge of the Convalescent Service. This reservation was necessary in view of the fact that often the transfer of patients to the Convalescent Service was attempted notwithstanding very fragmentary previous medical work. Even after a reasonable amount of accuracy in medical work had been obtained, it was found that patients frequently arrived upon the Convalescent Service with inadequate data.

PRELIMINARY MEDICAL ROUTINE

Based upon practical experience, a medical routine was established, and the history of every patient arriving upon the Service was as soon

as possible thereafter checked for the existence of the following information:

- (1) History checked for deficiencies.
- (2) Physical Examination.
- (3) Nose and Throat Consultation, including streptococcus throat smear.
- (4) Dental and sinus X-rays.
- (5) Dental examination.
- (6) Wasserman Test.
- (7) Blood Examination.
  - (a) Differential white count.
  - (b) Total whites.
  - (c) Total reds.
  - (d) Hemoglobin.
- (8) Neuro-psychiatric Consultation.
- (9) Occupational Assignment.
- (10) Blood Pressure.
- (11) Weight, and twice weekly.
- (12) Urinalysis, and once weekly.
- (13) Usual pulse, temperature, respiration record.
- (14) Hourly pulse chart, at least four consecutive days, from 6 a. m. to 9 p. m.
- (15) Pulmonary, Cardiac, and other consultations as indicated.

The completion of this preliminary medical routine usually required from three to four days. At its conclusion, and provided that it had not disclosed information sufficient to warrant immediate retransfer for further active medical or surgical treatment, the patient entered upon the regular routine of the Convalescent Service.

This regular routine was planned to care for the patient medically, to develop him physically, to occupy him mentally, to promote the restoration of health, and to eliminate the malingerer. The daily routine, or Convalescent schedule, was as follows:

#### CONVALESCENT SERVICE

##### SCHEDULE

Time	Routine
6.00	Up.
6.00- 7.00	Make beds—Wash up.
7.00	Breakfast.
7.30- 9.00	Clean Ward.
9.00- 9.15	Ward Round.
9.15- 9.30	Quiet Exercises.
9.30- 9.45	Foot Exercises.
9.45-10.00	Food (Canteen).
10.00-10.30	Military Drill.
10.30-11.30	Garden and Games.
12.00 N	Dinner.
1.00- 3.00	Mental Occupation.
3.00- 3.15	Food.
3.15- 4.30	Routine Exercises.
5.00 p. m.	Supper.
5.00- 9.00	Free.
9.00 p. m.	Quiet.

As the Convalescent Service developed, it became obvious that it was impossible to occupy a patient with purely medical details for more than perhaps an hour a day. The next element in occupation which was added, was graded exercise.

The exercise routine began with a short series of setting up exercises (17 movements), followed by a series of seven exercises for the feet. There followed for the more advanced patients a half hour of military drill. All patients were obliged, in decent weather, to be out of doors from 10:00-11:30 during the mornings. In this period, there was obligatory garden work for the weaker patients, and various games such as "indoor" baseball and volley ball occupied all who were fit to take part in such exercise.

The following photographs illustrate some of the outdoor activities just mentioned.



Consultation on construction.



Cleaning up ball field.



"Indoor" baseball.



Quoits.



Quoits; close decision.



Croquet.

The rather undress pyjama costumes illustrated, were routine on the Convalescent Service. Firstly, they were cooler than O. D. uniforms, and the weather was hot (maximum 107° F in the wards). Secondly, men dressed in pyjamas are when A. W. O. L. more conspicuous than when in uniform. One malingerer, who said the "Mayo brothers" had told him he could never sleep with less than four pillows on account of a bad heart, was not satisfied with routine pyjamas as a damper on social engagements, and required resort to the removal of his slippers and the lower half of his pyjamas, before consenting amid deluges of profanity to remain on the ward for continuous observation adequate to establish proof of his malingerer.

In the afternoon, the time from 3:15-4:30 was occupied by routine exercises which were obligatory for all patients out of bed. These exercises were of the slow type previously found by the writer to be especially valuable for convalescent patients. The 33 individual movements were

carried out very slowly, i. e. at the rate of five to ten seconds per linear foot of distance. Each movement was repeated three times. A rest interval of ten seconds was required for complete relaxation between each movement, and a further series of rest intervals for relaxation, of one minute each, were required between each of the 13 groups in which the movements were arranged, the whole schedule requiring about one hour for its completion. This type of exercise has been referred to in a published article (*Trans. Am. Gastro-Enterol. Assn.* 1918) under the title of "Developmental Exercises for the Chronic Intestinal Invalid." As conducted at the Walter Reed, it is referred to in another article, (*American Journal of Electrotherapeutics and Radiology*, March, 1920). Also, many of the exercises in this routine are recorded in Washington (Motion Picture Film No. 188, Instruction Laboratory, S. G. O.).

One might be inclined to think that the amount of physical occupation above outlined would prove adequate for the day. This was however not the fact. Usually, there being no officers' quarters on the hospital grounds, the writer went off duty and retired to Chevy Chase for the night about 6:45 P. M. It appeared that the really high class outdoor activities did not begin until about 7 P. M., from which time they continued in one form or another until 8 or 8:30 P. M.

One of the high lights in these personally conducted twilight activities of the patients was learned of only because one morning it was necessary to find out what had happened to one of the patients, a fine physical specimen but with an irritable heart apparently due directly to physical overstrain resulting from a too rapid return to duty after pneumonia. On asking the patient why he was unable to be out of bed in the morning, no adequate explanation was obtainable. Later in the day, after a little judicious questioning of other sources, it developed that the boy in question had been a participant in a baseball game. This baseball game was staged between the Bad Hearts and the Rheumatisms. It was apparently well advertised throughout the hospital, and when play began the game was followed by an eager group of between three and four hundred spectators (patients) who perched themselves upon roofs and all other available advantageous points of view. Excitement grew intense, and doubtless noise also. Eventually, the Bad Hearts defeated the Rheumatisms by a close margin, but only with the resulting casualty above mentioned. This incident is mentioned to show that, although much real work was conducted in the Convalescent Department, it was not enough to prevent the men themselves from enjoying themselves somewhat after hours, and then often in directions following the required routine for the day.

Simple things gave much pleasure to the sicker patients. For weeks, the men delighted in the early morning and sundown visits to the garden, of a black kitten and a white hen. The kitten chased grasshoppers, and the hen sought bugs. Twice daily these pets appeared from somewhere, put on their original vaudeville stunts, drew smiles from all onlookers, and disappeared only to reappear and perform again and again on the days that followed. It is difficult to estimate the ultimate health value of these two little pets.

With the patients willing and ready to do the work asked of them, it became the responsibility of the officer in charge to see that there were forthcoming at the time desired, the materials with which to work. Picks, shovels, and rakes were easily obtainable; but lumber for garden seats, and 100 feet of rubber hose, and other such odd items, were not so easily come by. However, if official requisitions failed, it seemed only necessary to mention that so-and-so was needed, and so-and-so appeared, from somewhere, with not too many questions asked. Water for the garden was obtained by a process of connecting the much prized hose to the threaded faucet of the kitchen sink, through a hole inconspicuously bored in the kitchen floor. Flowers for the garden came in part from the hospital supply, but mostly from a temperamental greenhouse owner who, though he refused to deal with the hospital as such, seemed glad to give to the garden of the Convalescent Department. Thus, in one way or another, things happened according to schedule.

The necessary athletic supplies, to a value of nearly \$100.00, were obtained by the writer as gifts from the larger department stores of Washington; these gifts resulted from conversations one afternoon with certain store managers, all of whom proved most sympathetically helpful. The supplies thus generously given were immediately transported in the writer's own automobile to the Convalescent Department, where within a few minutes most of them were in active use. These supplies were at the time so coveted in other parts of the hospital, that it was necessary to detail one man to act as constant guard for them, to prevent undue evaporation of such highly "expendable" property. It was only later that athletic supplies were issued for the Army, as potent aids to the maintenance of morale.

The garden and other work involved a really considerable total of what might be called practical home occupational therapy. There might have been difficulty in its accomplishment. Actually, all work of an obviously useful or purposeful character, carrying with it an element of practical helpfulness to others, was accomplished with ease and practically without friction, largely it is believed upon the basis of an adaptation of what may be called the gang-boss

principle. This principle is of common enough application in civil life. It bases in part upon the desire of most humans for an opportunity to display initiative and control, even if upon a limited scale.

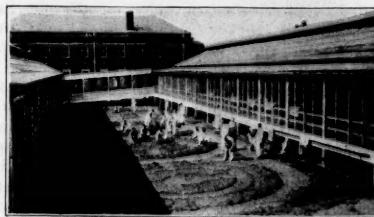
In practice, all work both within and without the wards was divided and subdivided into its component elements. There was very varied industrial talent among the patients, ranging all the way from the theater and the law to civil engineering, practical construction work, metal work, and pick and shovel work.

The better men were appointed overseers on the larger jobs. Under them were foremen, each with a gang of two to six men. Frequently, a man might at any given time be the boss of one gang on a job in which he was expert, and yet might himself be taking orders from one or two other men on other jobs with regard to which their expert knowledge qualified them to act as foremen.

The various foremen were appointed by the officer in charge, and were told to pick their own assistants, up to the number assigned for the job.

Rarely, a little friction developed. In general, however, harmony prevailed and much work was well done. It was in fact done at a high standard of excellence. In this connection, there should be mentioned the mathematical perfection with which the garden design was carried out by two engineers, and the accuracy with which the "indoor" baseball diamond was constructed by two practical baseball fans. All in all, it may be stated that this community spirit and method of home occupational work, set a standard for behavior and morale which received wide and favorable comment not only within the limits of the Hospital, but from visitors from the Surgeon-General's Office and elsewhere.

The visitors came perhaps to see the garden. (It was the show garden of the Hospital.) They



The garden, almost completed.

frequently remained to see the athletic activities of the Convalescent Department, and to discover, as on the occasion of the Fourth of July party given by the wife of the officer in charge, where the morale came from and why most of the men were mentally cheerful in the face of physical misery.

In parenthesis, it may be permitted to mention that at the Fourth of July party, fourteen cakes, homemade and of large size, vanished. One boy disposed in rapid series, of nine big wedges of cake, and continued to look wistful and famished. Another patient (photograph 14417-D), who, afraid of digestive disturbances, had to be commanded to eat a piece of light sponge cake even at the risk of immediate vomiting, remarked pathetically the following morning (after experiencing no ill effects), that he "didn't know cake was like that." These cakes were of pre-war standard of quality, with frosting inches thick. To obtain the extra sugar required for the frosting, it was necessary first to obtain the written authority of the Sugar Administrator for the District of Columbia.

Even with the amount of physical occupation above indicated, it was found that many patients were exceedingly restless, and constantly looking for trouble. As soon therefore as the status of Occupational Therapy at the Walter Reed became sufficiently developed to make it possible and desirable, all patients on the Convalescent Service who were out of bed were required to go for two hours (1-3 P. M.) to "The School."

The four photographs which follow illustrate some of the activities at the "School," soon after



Elementary academic work.



Advanced academic work.



Wood and shop work.



Practical automobile work.

it began to function. The patients in the photographs are almost without exception patients from the Convalescent Department. The wood and shop work, and the higher grades of academic work, were conducted within the School building. The elementary academic work was carried out in classes conducted upon the porches, and the practical automobile work took place outdoors under the trees.

The photographs themselves were made "for official use only" by the Military Intelligence Branch, General Staff, and it is with appreciation of the authority given for their present use that they are herewith reproduced. In the photographs there appear letters printed upon the shoulders of certain of the men. These letters identify the patients especially referred to in the text.

The "School" was an old deserted two-story frame building in a most uncertain state of repair. In fact, its condition was so precarious that at first only the piazzas were safe for actual use. The repair of floors, staircases, etc., provided, however, the best possible practical carpenter work for those men who desired such work. Shop work at first consisted only of automobile repairing, and since in the beginning no old automobiles were available, the writer in

the earliest days of the School allowed the use of his own machine in practical demonstration work by the instructors (photograph No. 14416).

No specific directions were given concerning what the patients should do. It was, however, obligatory that they should stay at the School for two hours. It was furthermore stated that the entire two hours could not be given to shop work, but that one hour must be devoted to some distinctly educational subject. For many patients, it was sufficient to give them an opportunity in order to have them at once busily occupied mentally.

Thus, one patient (photograph No. 14418-B) immediately plunged into the study of certain advanced phases of corporation law work, in continuance of studies interrupted by his entrance into the Army. Two other patients resumed special technical engineering studies.

A fourth patient (photograph No. 14418-A) was of especial interest as indicating what can be accomplished in the way of raising the status in life of a patient during his enforced stay in hospital. This patient was a Swedish blacksmith from Michigan, of excellent physique and good mentality. He was slowly recovering from double pneumonia, endocarditis, acute rheumatism, and several other complications, any of which might have been disastrous to a less healthy subject. As soon as this patient had sufficiently recovered from rheumatism to make joint motions possible, he was started on simple hand work, followed by more exacting types of exercises for the arms and legs. When the stage of walking was reached, the patient was questioned with regard to his mental outlook. It appeared that he was an excellent blacksmith, and had no difficulty in duplicating anything which he could see. He was however wholly without experience in the more complicated technical matters such as the construction of and working from blueprints.

But within two weeks of the time of receiving his first instructions in blueprint work, this patient was being utilized as a draughtsman in the making of plans for one of the Government offices. Before the end of the first month of his instruction, the patient with obvious pride displayed to the writer a satisfactory working drawing of a typewriter foot attachment for the use of a patient who, having lost one arm, was being trained in hospital to run his typewriter with one foot and one hand.

Shortly after completing this drawing, and after constructing from it the actual foot-pedal attachment for the typewriter, the patient was returned home. Six weeks after his return home, the head nurse on his ward received from him an excellent gold bracelet watch, accompanied by a most appreciative note from the patient, thanking everybody for the interest taken in his welfare. This note stated that as a result

of his knowledge of and experience in blueprint work, he had since his return home been able to take in, in a single month, an amount of money greater than he had ever taken in during any consecutive six months of his work previous to his entrance into the Army. For this improvement in his economic status, the patient gave full and entire credit to the instruction received in blueprint work while he was in the Hospital. Such real progress can hardly fail to gratify those responsible for it, almost to a degree equal to the gratification which might result from a successful application of more purely medical procedures.

On the other hand, in some cases the patients were resistant to the idea of occupational work and mental progress. If the Occupational Department reported that after a week or two of effort it had been impossible to interest such resistant patients, they were personally taken in charge by the writer. Although it occasionally required several days to bring about the desired result, it was without exception possible to stimulate some degree of active interest in educational work in every patient who passed through the Convalescent Department. This result was not however always arrived at without effort, as is instanced in the case of a rather tired, undersized, dreamy and anemic-looking young ex-railroad brakeman.

This boy (photograph No. 14414-C) spent much of his leisure time curled up in a corner scribbling poor poetry on scrap paper. The Occupational Department had failed absolutely to interest him in anything but automobile shop work. In the course of conversation, the boy asked the writer if he might not devote all of his required two hours per day to shop work. He was told that he could not, but that if any change in his arrangements were desired, he would be given permission to spend two hours daily on academic work. This he declined. Two or three days later, it developed that his consuming ambition in life was to be a garage owner. Discussing the matter with him, it appeared that he had not thought sufficiently far ahead to appreciate that to be a garage owner, it would be necessary for him to be doing something else besides crawling around the floor in dirt and oil repairing automobiles. It was pointed out that he could hire men to do this work for him, but that if he aspired to own a good garage, he must be able to write good business letters and in general be efficient not so much in tinkering automobiles as in administrative office work. He suddenly saw the light, and for the remainder of his several weeks of stay in hospital his every waking moment was (with full permission) devoted to the making of an extraordinarily rapid degree of progress in elementary English and other purely academic subjects.

At least a portion of the aversion which this boy displayed toward devoting his time to purely

school studies, traced to a reaction so frequently presenting in the other patients, as to be worthy of mention. On the average, these patients had when only 12-14 years of age been forced to drop most if not all of their schooling, for the more immediately practical purpose of earning a living or aiding the family to earn a living. Therefore, as seen in hospital at about the average age of 25 to 27, these men had suffered from a complete interruption to school work lasting 10 or more years, during which the possibilities of further academic learning had perhaps been the furthest of all things removed from their daily contemplation or active thought. In fact, the pendulum had swung so far that most of these men considered ten years of absence from opportunities for schooling as *prima facie* evidence of the hopelessness of any attempt at resumption of interest in academic work. This point of view was in all cases gradually changed with such good effect that the patients under consideration were at the time of discharge taking active interest in elementary school studies. Most of them at the time of discharge even volunteered a firm determination to carry on their renewed academic work by means of attending night school once or twice a week, in the expectation that this increased knowledge would be a real factor in promoting their upward economic progress.

The reality of this change in viewpoint on the part of the individual patients, with its constant accompanying increase in outlook and mental enthusiasm for work, invariably seemed more than adequate compensation for any effort involved in the accomplishment of the desired result.

In April and May, 1918, Occupational work at the Walter Reed General Hospital, as later known, was certainly in its infancy. Its scope was limited, as far as the writer was able to observe, to only the more elementary and casual forms of handcraft work; furthermore, a considerable proportion of the volunteers then engaged in this work seemed to be more interested in amusing themselves, than in benefitting the patients. As a result, there was created a distinct amount of hostility toward further development of Occupational work, and it was not until nearly mid-summer, 1918, that Occupational Therapy at the Walter Reed got a fresh start under the direction of Major Baldwin.

Although Army Occupational Therapy, even in the summer of 1918, was as yet in the experimental stage, its value and some of its limitations were very clearly demonstrated by the work being done by the Convalescent Department. It was for example clearly proven that it is not only undesirable but unfortunate, to attempt the development of such work in any hospital except upon a sufficiently broad scale to prevent a too unilateral focus upon any one aspect of Occupational Therapy. Furthermore,

it was clearly proven that lack of elementary education was the fundamental reason why the majority of the patients were unable to progress beyond a limited point, in the acquiring of knowledge of the shop work or trade which they desired to follow. Patients would frequently progress rapidly in shop work up to a certain point, beyond which an educational lack absolutely prevented further advancement. This fact became so obvious in practice, that it greatly influenced the point of view of the writer after his transfer to the Office of the Surgeon-General, as Consultant to the Department of Physical Reconstruction.

Obviously, it is useless and a waste of money to provide expensive special equipment for a patient who is unable properly to utilize such equipment. This is by no means to deny the possible value of teaching a patient with only moderate mentality, a single shop operation such as cutting a thread for a screw or bolt of a given size, since a man with such definite, even if exceedingly limited knowledge, may be able to obtain and hold a position as against a man who has not even this small amount of technical information.

The equipment necessary for purely educational purposes is however infinitely cheaper and simpler; and any elementary educational information acquired by a patient may be turned by him in any desired direction during later life.

The Army itself, under instruction from its psychologists, soon realized and publicly stated that education, or the ability to acquire education rapidly, was the greatest single asset of the soldier in his eventual usefulness to the Army, since it enabled him to become rapidly useful in any one of a large number of different directions. This is of course equally true for civil life.

Summarized, experience at the Walter Reed indicated the positive value of such a Convalescent Department as was conducted within the hospital. In the conduct of this Department, the dietary, medical, physical, and mental aspects of the care of the convalescent patient all proved to be of importance. In addition to general medical and physical care, the progress of the patients toward health was distinctly furthered by the utilization of facilities provided for mental work by the Occupational Department.

(To be continued)

DR. DEAN DEWITT LEWIS, of the medical school of the University of Illinois, Chicago, has been appointed surgeon-in-chief of the Johns Hopkins Hospital, to fill the place left vacant by the death of Dr. William S. Halsted.—*Science.*

THE honorary degrees to be conferred by Trinity College, Dublin, include the degree of master of surgery on Dr. George Crile and Dr. Charles Mayo.—*Science.*

## BRONCHIAL GLAND TUBERCULOSIS\*

A Study Based on Children at the Prendergast Preventorium,  
Boston Tuberculosis Association

BY JOHN B. HAWES, 2ND., M.D.,  
President, Boston Tuberculosis Association,  
AND  
ELI FRIEDMAN, M.D.,  
Physician to the Prendergast Preventorium

THE objects of this study which we have carried on during the past six months or more have been not only to ascertain as far as possible the condition and progress of every child entering the Prendergast Preventorium but more especially to demonstrate what we believe to be a chaotic state of affairs among clinicians and roentgenologists as far as the diagnosis of bronchial gland tuberculosis is concerned and also to point out what we believe to be the vital factors in the diagnosis of this condition.

Our report is of necessity a preliminary one. Six months is too short a time and one hundred children too small a number on which to base conclusions. This we frankly admit. While the tone of our report is a critical one the fact that it is one of constructive and not merely destructive criticism justifies its existence.

As stated above this investigation is based on examinations of children admitted to the Prendergast Preventorium, a small institution in Mattapan, owned and managed by the Boston Tuberculosis Association. The word, "preventorium," itself indicates that these children are not sick and are not suffering from clinical or active tuberculosis as are those for instance at the Westfield State Sanatorium. This point must be borne in mind. Each child, however, comes from some family in Boston in which there is or has been some adult or other case of consumption, and has therefore been intimately and actively exposed to tuberculosis. In addition to this, further requirements for admission demand that there be a positive Von Pirquet test, X-ray evidence supposed to show bronchial gland or hilus tuberculosis, and finally that the child in other ways has been made "free to gain" by the removal of bad teeth, tonsils or other possible sources of infection.

There are twenty permanent beds at this institution and the average length of stay of each child is four to six months. During July and August of last summer, and we expect to do the same in future years until we can increase the number of permanent beds, we made temporary arrangements for about eighty boys and girls of the same age as the others, 7-14 years, and admitted them under the same conditions. Therefore, we have had opportunity to examine carefully about one hundred children—contact cases—all meeting the same admission requirements.

\*Read at a meeting of the Trudeau Society of Boston, October, 1924.

Every Tuesday morning we have conducted a clinic at the camp and made the examinations on which this report is based. Each of us looked over the children separately and wrote down our findings and our independent opinion as to the X-ray picture before reading the report of the examining physician and the X-ray report of the referring agency which in nearly every case was the Boston Sanatorium.

The special points we have studied and are reporting on here are:

- a. X-ray evidence.
- b. d'Espine's sign.
- c. Parasternal and vertebral dullness.
- d. Eustace-Smith sign.

## X-RAY EVIDENCE

It became apparent to both of us almost at the start that in many instances we were unable to agree with the X-ray interpretations as given on the records of the agency referring the children to us. While in practically every case the X-ray report accompanying the child spoke of definite pathology of the hilus tissues, presumably thought to be due to tuberculosis, to us such appearances were well within normal limits. For instance, out of 29 X-ray films which according to the report of the Boston Sanatorium showed "tuberculous bronchial glands," "hilus tuberculosis," or "frank tuberculosis," we found in looking over the records that in our own opinion 17 were normal, 6 slightly suspicious, 5 suspicious and only 1 showed frank tuberculosis. To confirm our belief that there was a vast diversity of opinion as to this we took fifty consecutive X-ray films, each of which was said to show pathological changes and obtained independent opinions from three prominent roentgenologists of this city with the result shown in the following table:

TABLE I  
INTERPRETATIONS OF 50 CONSECUTIVE X-RAY FILMS OF CHEST, EACH SAID TO BE "SUSPICIOUS" OR "FRANK TUBERCULOSIS" BY AGENCY REFERRING CHILD TO PREVENTORIUM

	Normal	Slightly suspicious	Suspicious	Frank tuberculosis
Dr. X	29	11	8	2
Dr. Y	26	16	8	0
Dr. Z	30	8	10	2

In only 14 out of the fifty cases did these three X-ray men agree. These they all considered normal. In 5 cases one roentgenologist said a persistent thymus caused the X-ray shadow. Here is a very remarkable state of affairs. One competent roentgenologist says 50 films show pathological changes presumably tuberculous and three of his confreres equally competent are of the opinion that more than half of these are within normal limits and only two represent frank or open tuberculosis!

## D'ESPINE'S SIGN

Ever since d'Espine described his sign of enlarged tracheo-bronchial glands, there has been a great deal of controversy about it. This sign, in brief, consists in auscultation of the voice, especially of the whispered voice, along the course of the trachea posteriorly. Normally, the characteristic tracheal tone and the clearness of the whispered words stops at about the level of the seventh cervical vertebra. In cases of enlarged tracheal glands, the tracheal tone is transmitted by these glands, at times as low as the fifth dorsal vertebra.

In using this sign, we have taken into consideration the fact that the bifurcation of the trachea sinks from the seventh cervical in infancy to about the third dorsal in later childhood, and so we have made this an arbitrary standard for our own use. We have called this sign *negative* if intense bronchial whispered voice was heard only as far as the first or second dorsal vertebra, *slightly positive* if heard to the third dorsal vertebra, and *positive* if heard as far as the fourth dorsal or lower.

A close examination of this sign revealed several points of interest. There seemed to be considerable disagreement between the different examiners as to the exact level that the d'Espine was heard in several cases. Thus an examination of this sign in 53 children, done by the Boston Sanatorium and ourselves, showed the following:

TABLE II  
D'ESPINE'S SIGN

	Positive	Slightly positive	Negative
Boston San.	10	2	41
Dr. Hawes	3	10	50
Dr. Friedman	8	18	42

In one case the Boston Sanatorium found a d'Espine's sign down to the fifth dorsal vertebra; one of us found it to the sixth, and the other to the second. In another instance, one of us found it to the fifth and the other one only to the second dorsal vertebra. In two cases in which the Boston Sanatorium reported it at the level of the fourth and fifth vertebra respectively we found it only to the second. In

one case in which very marked enlargement of the bronchial glands was reported on X-ray examination the d'Espine's sign was declared to be negative.

A further study of the d'Espine's sign as related to the roentgenological findings showed considerable discrepancies. In some cases, the X-ray examination as interpreted by a competent roentgenologist showed definite hilus pathology, while the d'Espine's sign was negative, and in others, just the reverse was noticed, as is shown by the following table:

TABLE III  
X-RAY SIGNS AS COMPARED WITH THE D'ESPINE'S SIGN  
IN 85 CASES

No. of Cases	X-ray	d'Espine's and other signs	Percentage
20	Positive	Positive	24%
30	Negative	Negative	33%
15	Positive	Negative	20%
12	Negative	Positive	14%
8	Doubtful	Doubtful	9%

Since we have had no post mortem examinations on any of the 27 cases where the X-ray findings disagreed with the signs it is impossible to state which is the more reliable. However, this much is certainly evident: First, that there is a marked variation in results in eliciting this sign which greatly detracts from its usefulness; second, that when distinctly present it is far from being pathognomonic of tracheal gland enlargement as some would have us believe.

## PARASTERNAL AND VERTEBRAL DULLNESS

Both of us, though very skeptical as to the value of either parasternal or paravertebral dullness, endeavored to keep our minds absolutely unbiased as to these points and in each child we examined, percussed out the areas on either side of the sternum and between the scapulae with the utmost care and recorded our findings. If we followed the X-ray report of one radiologist there should have been at least some slight dullness either in front or posteriorly if the sign were of any value; if we believed the reports of the three other roentgenologists a large number of negative cases was quite to be expected. The following tables show the comparative figures:

TABLE IV  
PARASTERNAL DULLNESS

	Positive	Slightly positive	Negative
Boston San.	2	6	50
Dr. Hawes	0	1	62
Dr. Friedman	0	0	63

TABLE V  
PARAVERTEBRAL DULLNESS

	Positive	Slightly positive	Negative
Boston San.	2	6	50
Dr. Hawes	0	1	62
Dr. Friedman	0	0	63

These figures give striking evidence that in this group of children at least, who were supposed to have hilum tuberculosis as shown by X-ray, neither parasternal nor paravertebral dullness is an important factor in diagnosis. One must remember, however, that as we stated at the beginning of this paper, these are not sick children; they are potential consumptives, contact and infected cases and not to be compared with a group such as is under the charge of Dr. Henry D. Chadwick at the Westfield State Sanatorium. His children are sick children and naturally would show more in the way of signs both by X-ray and clinical examination than do those on whom we are here reporting. This perhaps explains to a slight degree why Dr. Chadwick finds interscapular dullness a sign of value and we do not. Dr. Chadwick makes the interesting point that it is a sense of resistance and a feeling of tenseness or spasm of the skin and underlying tissues rather than a dull sound to percussion on which he depends. He agrees with us that parasternal dullness is a sign of little or no value, however.

#### EUSTACE-SMITH SIGN

This sign, which has received wide attention, consists of a clear, continuous hum or bruit heard over the upper part of the sternum when the child's head is retracted as far as possible. We have called the sign positive when such a bruit was heard, slightly positive if a bruit but not a continuous one was present and negative if nothing was heard.

The Boston Sanatorium did not report on this sign except in four cases. Out of 60 children one of us found it positive in only 4, suggestive

in 7 and negative in 49 cases while the other also found it positive in 4, suggestive in 2 and negative in 54 cases. We both agreed on the positive and suggestive cases. This sign is said to be found also in short-necked children without glandular enlargement. That its value in diagnosis of enlarged hilus glands is therefore very small indeed is evident.

#### SUMMARY AND CONCLUSIONS

I. There is at the present time an amazing difference of opinion among X-ray men and between roentgenologists and clinicians as to the interpretation of X-ray shadows of the hilus region in children. There is no apparent unanimity of opinion as to what constitutes normal or abnormal, tuberculous or non-tuberculous, active or inactive, old or recent. This is a most unsatisfactory state of affairs and one that should not be allowed to continue. We would call this situation to the serious consideration of the roentgenologists of this country.

II. We believe that there is urgent need of further study as to the effect of acute non-tuberculous respiratory tract infections upon the hilus glands and tissues from both the clinical and roentgenological aspects.

III. We are of the opinion that both the d'Espine's sign and the Eustace-Smith sign are of comparatively little value; further we believe that so-called parasternal dullness is a point of no value and that paravertebral or interscapular dullness are of value chiefly in the hands of those very few whose skill in percussion is highly developed. We agree that in the case of children who are actually sick with tuberculosis and are not merely infected contact cases paravertebral dullness may be of real value in diagnosis.

IV. The whole subject of the diagnosis of bronchial gland or hilus tuberculosis is still in a stage of doubt and uncertainty. "Signs" at the best are unreliable and X-ray evidence at present of little value. Diagnosis should be based on history, exposure, positive Von Pirquet and constitutional signs and symptoms.

## CHRONIC BRONCHITIS\*

BY EDWARD O. OTIS, M.D.

WHETHER or not chronic bronchitis is an entity—a definite disease—may be a controversial question, but in many cases it is such a predominant symptom that for clinical purposes, at least, we are justified, I think, in regarding it as the evident disease.

Just how long a case of bronchitis may persist before it can be considered chronic is a question of opinion and experience. If, however, a bronchitic cough has lasted more than

five or six weeks, one would be justified in considering it chronic or as a symptom of some other disease.

Of course, we know that it is only incidental in certain diseases—only one of the symptoms—as in various infections, such as influenza, measles, typhoid fever, syphilis, etc., also in elderly persons suffering from degenerative changes in the heart, kidneys or lungs. In both classes of cases, however, chronic bronchitis may and often does assume the leading role in the com-

\*Read before the Trudeau Society of Boston, March 17, 1925.

plex of symptoms, so that it practically becomes the disease and demands treatment for itself alone.

It is well at this point to be reminded that chronic bronchitis may deceive us and conceal an underlying disease. This at least occasionally happens, when for instance there is a tuberculous lesion obscured by the noisy clamor of the more blatant bronchitis. If all elderly individuals with a chronic cough had their bronchial secretions examined, a certain number would undoubtedly show tubercle bacilli in their sputum. Who knows how many infants and young children have been sacrificed by being cared for by a grandmother or an old family nurse who was suffering from what was supposed to be only a chronic bronchitis? Calmette, in his book on "Bacillary Infection and Tuberculosis," quotes the following tragic story, narrated to the Academy of Medicine by Landouzy:

An American family living in Paris under ideal hygienic conditions, the parents being in perfect health, had three children born at intervals of two years. An old governess, over sixty years of age, who had been attached to the household for fifty years, took care of the children, of all of whom successively died of tuberculous meningitis at almost the same age. On investigation Landouzy found the old governess suffering from what was supposed to be chronic bronchitis and emphysema, but in reality from a type of senile tuberculosis, a kind, he says, which is very deceptive as to its true diagnosis, for the individual does not appear to be ill and leads an active life. Through much persuasion Landouzy prevailed upon the parents to send the old governess back to America. Since her departure two other children were born under the same environment and conditions, both nourished by the same mother as were the other three children and both grew up well and strong. The moral is that when old persons are suffering from chronic bronchitis, particularly if they are associated with children, they should receive a very careful examination.

One of the best descriptive accounts of chronic bronchitis I know of is by Babcock, in his book on "Diseases of the Lungs." He divides the disease into two categories. First, "those cases that are due to some specific pathogenic organism, and second, those that cannot be regarded as a persistence of a specific bronchitis but that result from frequent repetition of an ordinary tracheo-bronchitis that develops insidiously and may therefore be regarded as a non-specific inflammation of the air tubes."

In the first category—the specific cases—the chronic bronchitis grows out of the specific infection whatever that may be, and as the original disease wanes the bronchitis waxes until it becomes a disease in itself and carries on indefinitely.

In this connection Babcock refers to a condition, or rather a physical sign, which I have not

infrequently found, but have not happened to have seen it mentioned elsewhere, namely, a slight impairment of resonance at the base of one lung and a variable number of medium sized mucous rales. I have called this an indication of a localized bronchitis but I am not sure that it is not a lingering patch of broncho-pneumonia, which Neimeyer used to call capillary bronchitis. To illustrate: A patient came to me some years ago with a story that he had been in one of the hospitals in the city for a number of days suffering from some acute pulmonary condition. What the disease was he did not know, but, from his description, it seemed probable that it was either influenza or broncho-pneumonia. Before he left the hospital a diagnosis of tuberculosis was made, apparently from a positive Von Pirquet test, and an application for his entrance into a sanatorium was made. On examination I found the very condition referred to above, namely, a patch of moist rales at the base of one lung and nothing else. I told him that I did not find evidence of tuberculosis and that he would recover, although it might take some time, and I saw no necessity of his entering a sanatorium. In little more than three months the rales had disappeared, and, so far as I know, the man has remained well to this day.

Another case: A clergyman was sent to me from another city with a request from his physician that I should suggest a suitable climate for him as he was suffering from tuberculosis. On examination I found this same condition, namely, a patch of moist rales at one base, the lungs being otherwise negative. I wrote his physician that I could not find sufficient evidence for a diagnosis of tuberculosis and that I doubted the necessity of his patient giving up his charge and going away, as I believed he would recover at home. I am quite sure, however, that neither he nor his physician believed me, but I am confident that the man did not have tuberculosis and was bound to recover in time, whether at home or abroad.

There is another condition which may give this same sign, moist rales at the base, and that is bronchiectasis, but the symptoms are different and the X-ray may show what I believe the roentgenologists call a "bunch of grapes" appearance.

In Babcock's second category, namely, the non-specific inflammation of the bronchi, may be included those cases of chronic bronchitis so frequently found in elderly persons suffering from degenerative changes, or other causes, and those who are constantly exposed to dampness, or subject to great and sudden changes of temperature, such as cooks and laundry workers. Dust of various kinds and irritant vapors are also etiological factors in other cases. The chronic bronchitis resulting from frequent attacks of the acute tracheo-bronchitis must be carefully investigated, for the unwary may have

a rude awakening if the apparent bronchitis turns out to be tuberculosis.

Any lingering cough with this etiology needs a careful physical and sputum examination. An example occurring in my clinic impressed me with the importance of this rule. A young man, who gave the classical history of a cold, beginning with the typical coryza and the following tracheo-bronchitis, still continued to cough after several weeks, and the condition seemed to be merging into a chronic bronchitis, although he declared that his cough was lessening and he felt in good condition, and his appearance indicated it. On examination, however, a few moist rales were detected at the apex of one lung, and his sputum was positive.

The diagnosis of chronic bronchitis as such is not difficult, but search should be made for underlying causes or etiological antecedents. Sometimes the chest is full of sonorous and sibilant rales and sometimes the dry rales are interspersed with moist rales. Again at intervals the lungs are quite clear, as happens in asthma. The auscultatory signs are generally bilateral, but occasionally they may be almost entirely unilateral. Emphysema is practically always present, for one cannot cough for months and years without permanently impairing the elasticity of the lung structure. This complication adds dyspnoea to the train of symptoms. As time goes on the cardiac muscle suffers, and then dilatation of the right ventricle occurs, another cause of dyspnoea.

The bacteriology of these non-specific inflammatory cases shows no predominant microorganism, though one will occasionally find a single ascendent organism. I recall the case of an old man who suffered from chronic bronchitis for twenty years, whose sputum showed an almost pure culture of the influenza bacillus.

How much the X-ray reveals in these cases of chronic bronchitis I cannot say, or what significance the so-called peribronchial thickening has, with relation to the disease. The roentgenologist can best tell us that. In my experience with ex-service men, men referred from the Veterans' Bureau, most of whom claimed to have been gassed, I have not only found no evidence of tuberculosis in the vast majority of cases, and but few who were suffering from a well-defined bronchitis, although they all say they have a chronic cough.

There are several other conditions in which the leading or a prominent symptom may be chronic bronchitis. Such are:

Intrathoracic tumors with no localizing signs, and only rales are encountered;

Foreign bodies in the air passages;

Pneumokoniosis;

Chronic empyema;

Aneurysm of the aorta;

Arithic conditions, or gout.

In some of these the differential diagnosis may for a time be difficult, but in the end the

true underlying cause will generally be discovered.

In the treatment of chronic bronchitis the obvious end to be attained is removal of the cause, if this can be effected. Failing in this, one must strive to ameliorate the distressing symptoms. Innumerable methods and drugs have been employed with more or less success. We are familiar with the few which have proved the most reliable. With the old man's chronic bronchitis a change to a mild, equable climate where one can be in the open air is probably the most effective means of moderating the symptoms and rendering existence tolerable. Sometimes one can make an artificial mild climate in his own house. I recall the case of a woman on Commonwealth Avenue, who converted the second story of her house into a summer climate, and did not leave this warm environment until she saw the green leaves on the trees in the park. Fothergill speaks of the peasants of rural England, who when suffering from chronic bronchitis go to bed at the beginning of cold weather and remain there until the advent of summer.

In the use of vaccines for chronic bronchitis I have had no experience, but I can hardly see how they would be of value, at least in the non-specific forms of the disease. Attenuated chlorine gas may cure a President's coryza, but it seems probable that at the same time it might excite or stimulate a tracheo-bronchitis.

Whether or not chronic bronchitis is a definite disease or only a symptom, it becomes, in so many cases, such a dominating symptom that, as I said in the beginning, for clinical purposes and for purposes of treatment it may and indeed must be considered a definite disease.

Chronic bronchitis is so frequent and so widespread, and causes so much suffering and disability that it demands a most careful study both as to its etiology, its pathology and treatment. There is no more grateful patient than the chronic bronchitic who has been relieved by the painstaking effort of his physician.

Chronic bronchitis is a wily enemy and may beguile the physician and bring tragedy to his patient by camouflaging a parenchymatous tuberculosis. It stealthily builds its nest in the bronchi of the worker in a dusty environment from the inhaled dust and renders him useless as a wage earner in midlife. It causes the old man, "piping and wheezing in his sound," to plod his weary dyspnoeic way to the grave and it adds to the agony of the gasping asthmatic.

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THE Samuel D. Gross prize of the Philadelphia Academy of Surgery for 1925, amounting to \$1,500, has been awarded to Dr. John Alexander, Ann Arbor, for his essay entitled "History, present practice and proposed reform of the surgical management of pulmonary tuberculosis."—*Science*.

## THE COMMON COLD\*

BY GEORGE B. RICE, M.D., BOSTON

FIFTEEN public schools in Washington, D. C., were studied during the years 1923-'24 by a committee, to discover the cause of school absences. It was found that more than 70% of the absences were due to medical causes, and nearly 40% to respiratory affections.

The Metropolitan Life Insurance Company reports the number of absentees from common colds in fifty-two weeks' observation of one thousand employees to be 420, and the aggregate number of days lost from this disease to be 6233. The *Weekly Bulletin* of the Chicago Health Department of September 20, 1924, estimates that in Chicago colds represent a financial loss of \$7,500,000.00, to say nothing of the discomfort—and even loss of life—which cannot be estimated in dollars and cents.

Dr. Allen, Medical Director-in-Chief of the John Hancock Mutual Life Insurance Company, at the request of the President, Mr. Crocker, kindly sent the following report for the year 1924, based upon 300 working days of 2000 employees.† The number absent from work was 651, and the number of days missed 1202½. These statistics are confirmed by observations in other large institutions and schools.

One would naturally think that a disease so frequently affecting the human race, and so many times disastrous in its complications and sequelae, would have been the subject of extensive research, and that definite conclusions would have been reached concerning its etiology and cure. Such, however, is far from the case; in fact, it is only within a very short time that serious attempts have been made toward its better understanding.

In reviewing the literature, therefore, many questions arise in one's mind concerning the reliability of our present conception of colds, whether due to infection or not; the influence of climate and hygiene; prophylactic and curative measures—such as clothing, baths, diet, vaccine, etc., and the value of internal and local remedies. These questions cannot be satisfactorily answered, of course, in a paper of this description, or by one individual's experience; but certain conclusions can be drawn which may be of value, or may at least serve as a slight incentive to further thought and investigation.

Through the courtesy of Dr. J. G. Townsend of the United States Public Health Service, the writer has received two reports, one, "The Epidemiological Study of Minor Respiratory Diseases," and the other, "A Review of the Literature on Influenza and the Common Cold." Both are recent publications, and are the result of some years of research work in different parts of our country. In one series of exper-

iments carried out in 1923-'24 the method used was to send to students of twelve large universities in different parts of the country, and to family groups from the Army and Navy, and to health officers, letters requesting information as to past influenzas and pneumonias, and colds; whether or not the reporter was subject to chronic nose or throat diseases, habits as to amount of fresh air during sleep, kind of underwear worn during the winter, amount of in and out door exercise, and the average number of colds contracted during the year. After this information had been obtained blanks were sent to each subject twice each month asking that he report whether or not attacks had occurred during this period, and if so what was the duration, severity, symptoms, history of contact infection if any, and any other information pertaining to the subject. A continuous report was thus obtained from each individual for further study. These reports show that the common cold has in all localities certain periods when they may be called epidemic. For instance a high wave in the latter part of October, a decline to the latter part of December, a sharp rise to the first week of January, and from them on a gradual decline, and this variation is synchronous, as shown in as widely separate cities as San Francisco, New Orleans, Chicago, Boston and Washington. In these reports it was difficult to separate different forms of the common cold, but cases of bronchitis, influenza and pneumonia were comparatively few, the predominating disease being the acute coryza type. About 90% of the 1272 cases tabulated suffered from one or more colds during the eight months' period. Of those suffering from a common cold 7.7 reported fever, 83.1 running of the nose, 62.6 nasal obstruction, and 25.0 sore throat.

Smiley\* reports four years' study—from 1919 to 1924—of acute infections of the throat and respiratory system of male students of Cornell University. Monthly records were obtained, and the results tabulated. An attempt was here made by means of questionnaires to discover how large a factor as an exciting cause are tobacco, diet, gas, mouth-breathing, drafts, constipation, etc.; and the conclusions were that these did not definitely result as a pathological factor. Exercise was not conducive to immunity—in fact, as taken by students, it was a distinct liability. Woolen underwear was not a preventative. Heredity did not seem to decrease immunity; nasal surgery and tonsillectomy did not cause a reduction in the acute attacks.

Jordan, Norton and Sharpe† conducted simi-

\*Read before the Hughes Medical Club, January 14, 1925.  
†1923 report shows total number of absences from work due to colds, 654; number of days missed, 1202.

Journal of the American Medical Association, February 18, 1924.

Public Health Reports, page 42.

lar experiments in groups of subjects in Chicago, Los Angelus, and Galveston. The conclusions from these investigations were that:

1. The common cold usually starts in the nose.
2. The sequence of development is not uniform.
3. There is no correlation between types in duration, severity and frequency.
4. Colds in Galveston and California, while quite as frequent, were not as severe as in Chicago.
5. 22% thought that their colds were contracted from others.
6. Throat and nose operations did not produce a marked reduction in cold catching.
7. Sixty-four percent believed that their colds were due to some strain on the heat regulating mechanisms of the body.
8. Resistance building apparently had little effect on the frequency of the colds.
9. Among the bacteria cultivable no one group was found to predominate.
10. No conclusion could be reached from these cases regarding the infectious properties of colds.

Winholz and Jordan<sup>†</sup> studied the health of 500 infants, and concluded that the occurrence of colds in these infants was almost always accompanied by colds in other members of the respective families.

Large<sup>‡</sup> of Cleveland states that, for a period of three years, in practically all cases of colds which came into his office, cultures of the nose, nasopharynx and throat were made. The technique employed consisted in rubbing a sterilized platinum loop on the mucous membrane of the nose, nasopharynx and throat. Culture tubes were then inoculated with these loops. In some cases the patient's own blood implanted on culture media was used. The nose and throat were then thoroughly washed out with sterile salt solution by means of a large metal syringe. Cultures were again taken with the platinum loop from the nose, nasopharynx and throat. Cultures taken before washing showed many different kinds of bacteria, while in those taken after the washing staphylococci and micrococci catarrhalis were not present, but only streptococci and pneumococci. In persistent colds, Friedlander's bacillus, the streptococcus, and the bacillus influenzae were those most frequently encountered.

It is denied by many laboratory workers that bacteria are present in large numbers in the healthy nose and throat, for it has been found by repeated observations that normal mucous secretions are bactericidal, and that often the respiratory passages are found to be sterile even in the first stage of a cold. Other observers state, however, that the micrococcus catarrhalis

is usually present. Gordon\* investigated the role played by this microorganism in the production of colds. He examined 110 people, none of whom had either been knowingly exposed to colds or had suffered from colds within a recent date. Cultures were taken from these persons in practically all months of the year, and yet there was no seasonal variation in the percentage incidence of the micrococcus catarrhalis. Of the 110 normal healthy persons 51, or 46%, showed the presence of the micrococcus catarrhalis in the nose, nasopharynx and throat. He then studied 119 persons suffering from colds. These were observed from 24 to 48 hours after the initial onset of the symptoms. The micrococcus was found in 54, or 45% of these 119 persons. The organism, therefore, was encountered in cultures from people not having colds as frequently as from those having colds, the percentage incidence being 46 and 45 respectively.

In confirming some earlier observations by Kruse, Foster prepared filtrates from the nasal secretions of individuals having colds. The nasal secretion in each case was blown into a sterile Petri dish, and was mixed with 10 c.c. of 0.8 percent salt solution. This solution was well shaken up and passed through a small Berkfeld filter. Ten soldiers were then inoculated with this filtrate by placing three to six drops of it well back into each nostril. Nine of the men developed typical symptoms of a 'cold' in from eight to thirty hours. These symptoms persisted for three to six days. Cultures and subcultures were made of this filtrate and incubated seven days. Filtrates from these subcultures were diluted with salt solution until dilution of the original secretion had reached a dilution of 1:90,000. Eleven soldiers were then inoculated with this diluted filtrate in the same manner as in the first experiment with the ten soldiers. In from eight to forty-eight hours all the eleven men had developed acute colds. No definite microorganisms could be grown from any of the cultures of the filtrates. Under the dark field microscope a profusion of minute bodies were seen, but no definite microorganisms could be made out. Foster feels, however, that because of the production of all the symptoms of a cold with a filtrate of such high dilution from nasal secretions and because of certain changes, ordinarily interpreted as indicative of bacterial growth noted in the cultures and subcultures, which were not present in the controls, he is dealing with a virus which is the cause of common colds."

Mudd, Grant and Goldman<sup>†</sup> by a series of experiments found that chilling of the surface of the body causes a contraction of the blood vessels of the mucous membrane of the upper respiratory tract, and a lowering of the temperature.

<sup>\*</sup>Journal of the American Medical Association, July 28, 1923.  
<sup>†</sup>Annals of Otology, Rhinology and Laryngology.

<sup>‡</sup>Public Health Report—"A Review of Literature on the Influence and the Common Cold," by Dr. J. G. Townsend.

Rossbach<sup>†</sup> in experiments with rabbits opened the trachea and applied ice to the abdomen. He then noted a venous congestion of the lining membrane. These conditions he thought were due to a reflex from the skin causing paralysis of the blood vessels of the mucous membrane with altered secretions, and decreased resistance followed by infection.

The Public Health reports would seem to show that care of the diet, clothing, habits of exercise, bathing and sanitary environment have little influence in preventing the frequency and severity of colds. This inference is contrary to the experience of most clinicians. It seems to be well established that colds are infectious processes, not always in the initial stage, but that they eventually become so. Our knowledge of immunity certainly teaches that the prophylactic measures above noted do increase resistance, and protect the body to a degree from the influence of virulent microorganisms. Our present conception, then, of a common head cold, is that it is due to many varying causes—exposure to cold and wet, poor environment, improper clothing; to local pathology, hereditary predisposition, unhealthy occupation, finally resulting in loss of immunity against certain forms of infection.

The pathology is clear enough: First, the dry stage when the blood vessels are contracted, and the activities of the mucous glands are lessened; then the extra vascular stage, when the blood vessels are dilated, and there is increased activity of these glands, with obstruction to respiration; now the so-called catarrhal stage with thick mucopurulent secretion; and finally, resolution, or involvement of other structures, such as the sinuses, the nasopharynx, larynx, trachea, bronchi and ears. General symptoms, such as fever, prostration, headache, pain in the back and limbs, depend upon toxins developed and absorbed during this stage of infection.

What results can we expect from internal and local medication, and the use of vaccines? Only two phases of treatment will be discussed, viz., local medication and vaccines.

Warm alkaline irrigations are helpful in all stages of a cold. These should not be forced through the nasal passages, nor applied by means of an atomizer under strong air pressure, but used with a piston syringe or a nasal douche, taking great care that the return flow is unobstructed, and that the patient does not blow the nose for at least ten minutes after irrigation. The application of one of the new silvery salts by means of a cotton tampon is also beneficial. These should remain in the nose well up against the middle turbinated body for from ten minutes to half an hour, depending upon the reaction. Application to the nose of one of the many oils and ointments prepared for nasal use, for protection after other forms of

medication have been used, will also be found beneficial.

Much has been written of the effect of chlorine gas inhalations as a cure in all stages of a cold. Notoriety of this measure was largely brought about by the newspaper accounts of the treatment of the President of the United States by this method.

At first it was thought necessary to prepare a small room for the reception of the patient, in which chlorine gas was liberated—the patient taking the inhalation for an hour or more at a sitting. Then certain manufacturers developed an apparatus to which was attached a large paper cone—the patient inhaling the gas from this.

Recently ampules of chlorine gas have been put on the market, the contents of which are poured into a shallow dish, and the surrounding atmosphere in a small room soon becomes saturated. More complete distribution of this gas is aided by an electric fan. Within a few days a circular has been received announcing the incorporation of chlorine in a nasal ointment. This is applied to the intranasal passages and the patient inhales the chlorine gas, which is set free by the warmth of the intranasal tissues.

Experiments have been carried out with chlorine medication in many of the large hospitals of the country. A recent report from the Army Medical School and Walter Reed Hospital states that no bacteriological basis can be found for the chlorine treatment. Major Nichols reports that no evidence of antiseptic action has been found in nearly 500 cultures made on about 75 individuals; in other words, the bacteria of the nose and throat are not killed by this method. He further states that harmless organisms sprayed into the nose and throat are not killed by this treatment. In his opinion really effective doses are too toxic to be used as a remedial agent. The experiments used in other institution would seem to substantiate these findings. On the other hand reports were published by Veider and Sawyer in the *Journal of the American Medical Association*, March 8, 1924, which would seem to show a most remarkable effect upon a variety of respiratory diseases. They report: 81% cure of acute bronchitis.  
78% cure of acute laryngitis.  
100% cure of chronic laryngitis.

Gilchrist—lieutenant-colonel, United States Army Medical Corps—stated in October, 1924, in the *Wisconsin Medical Journal*, that “among the diseases relieved and cured by the chlorine method are colds, laryngitis, bronchitis, whooping-cough, etc.” These reports were based upon the treatment of 900 cases.

Notwithstanding these last reports chlorine gas as a curative remedy is still in the experimental stage, and is probably of small value.

Regarding vaccines, many close observers, both in the laboratory and clinical fields, believe

<sup>†</sup>Oleason: *Diseases of the Nose and Throat*.

strongly in their favorable influence both as a prophylactic and curative measure.

Floyd\* has had very gratifying results with vaccines. Where the infection has been severe he isolated members of the streptococcus and pneumococcus groups and prepared vaccines. Early in the fall he gave three or four inoculations of the combination of these vaccines to each case. This was repeated in the spring. If a cold occurred in the interim the patient was given an inoculation during the first twelve hours of the onset. He reports that one or two injections brought about a rapid termination of the cold. In others he was unsuccessful, but in the majority the inoculation modified the severity of the colds usually endured and have also diminished their frequency. In some cases immunity from acute respiratory infections was secured, especially in those who were abnormally susceptible to infection, and in whom frequently one cold rapidly succeeded another.

The writer has communicated by telephone with a number of Boston laboratory men—these without exception are in favor of autogenous vaccines for prophylaxis, as well as for treatment of the acute and catarrhal stage. The writer's experience with autogenous and stock vaccines has been favorable, although no statistics of value can be presented. The indiscriminate use of stock vaccines is to be deplored. They should be carefully selected and their use governed by the kind and variety of microorganisms found present in the nasal secretions.

It must not be inferred there is an unanimity of opinion on the value of vaccines in colds and other infections—for such is by no means the case—but from a somewhat extended review of the literature on the subject the writer feels that the consensus of opinion is favorable.

In summing up the contents of this paper the writer believes that he can best express his conclusions by making a confession of faith. He

believes that a cold frequently begins from thermal changes or from the inhalation of external irritants, as a noninfective hyperemia, and it can then be aborted. Later a true inflammation and infection takes place, and the cold is established as an infectious process, and is then communicable to others. He believes that the care of chronic inflammatory conditions of the air tract by medical and surgical means are necessary procedures in the preventative treatment of colds, and that the accessory sinuses of the nose should be taken into consideration, and treated when found diseased. If the tonsils exude pus and debris on pressure they should be removed as a prophylactic measure; and adenoids—if they obstruct respiration or interfere with middle ear air interchange—should also be removed by surgical means. He believes in vaccines and internal remedies. It has been his good—or bad—fortune to have had for patients hundreds of professional singers and speakers. It is very important that these people should keep in good vocal condition, and he believes that in a great many instances he has been instrumental in bringing about decreased susceptibility to respiratory inflammatory conditions. He is sure that he has been able to abort colds many times. He is sure, also, that in the catarrhal stage intranasal cleanly measures, such as alkaline solution irrigations, the use of silver salt tampons and medicated oils, together with internal medication and electricity, will modify the course of the disease, and in many instances prevent complications.

Notwithstanding the negative results from use of hygienic measures as quoted in the Public Health Reports, the writer believes that care of diet, the avoidance of tobacco and stimulants, the wearing of proper clothing, and the stimulating effects of cold baths are essentials in increasing resistance. He believes, also, that a more intimate relation between doctor and patient than was possible in the investigations of the Public Health officers would prove these statements.

\*Annals of Otology, Rhinology and Laryngology, December, 1924.

## TWO UNUSUAL CASES OF FOREIGN BODY

BY IRVING J. WALKER, M. D.

THE following two cases are reported because of the unusual character of the foreign bodies swallowed by the patients, and because of the favorable outcome in each instance by very simple lines of treatment.

### Case I. E. McN. Female. Age 43 years.

Has been a patient at the Boston State Hospital since October, 1912, under treatment for dementia praecox. In 1922 it was discovered that she was sticking pins into the abdominal wall; ten of these were later removed at the Boston City Hospital. May 20th, 1924, a red, ten-

der swelling was noticed just above the umbilicus. This was thought to be an abscess of the abdominal wall. Examination of the abdomen was rather unsatisfactory because of the marked obesity. Under ether on May 27th, 1924, an incision was made into the abscess with evacuation of about 2 oz. of pus. On exploring the cavity, a table fork was found protruding through the abdominal wall into the abscess cavity. This was removed. Exploring finger revealed other foreign bodies, which upon removal proved to be a spoon, a sardine can opener, and a crochet needle, the hook of which had been filed away

leaving a sharp point. These were in a sinus well walled off from the general peritoneal cavity, extending from the abdominal wall to near the region of the pyloric end of the stomach. X-rays showed no remaining foreign bodies. The

red blood, but no foreign body. That evening another brass eyelet was passed. X-rays on January 7th, 1925, showed the blade to be in the rectum about one inch above the rectal orifice.

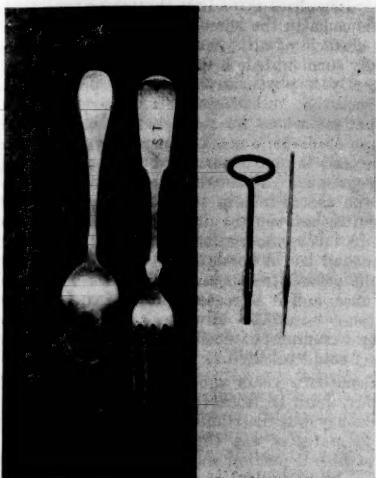


FIG. 1.

patient had a small gastric fistula for about four weeks, which healed spontaneously. Her physical health has been excellent since. However, she has subsequently attempted to swallow pieces of blankets, rubber sheets, and toilet paper.

**Case II. M. R. Male. Age 56 years.**

Has been a patient at the Boston State Hospital since January, 1916, because of manic depressive psychosis. On December 30th, 1924, while being shaved by the barber, he managed to secure a safety razor blade. He stated that he had swallowed this, together with a ring. X-rays taken one half hour later were unsatisfactory. X-rays again on December 31st, 1924, showed in the stomach a ring-like shadow, also a shadow corresponding to that of a safety razor blade. Patient kept on an ordinary diet. On January 2nd, 1925, in a well-formed movement, there were passed two small underwear buttons, a brass strong-suit eyelet about the size of a 25c piece, and considerable shredded cloth. X-rays at the Boston City Hospital on January 3rd, 1925, showed a ring-like shadow, and an outline suggesting the safety razor blade, probably within the lower small intestines. On January 5th, 1925, another X-ray showed that the blade had moved a little lower in the abdominal tract. January 6th, 1925, patient was given 4 oz. of a 50% solution of magnesium sulphate. In the watery stool that followed was a little bright

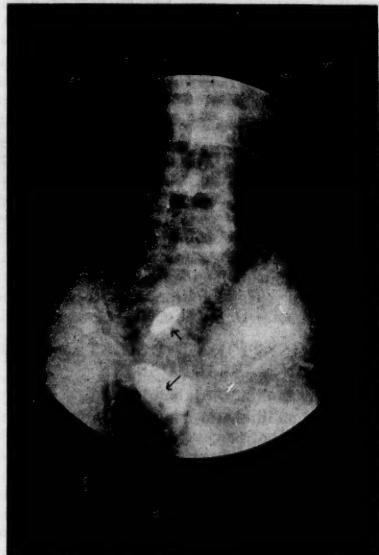


FIG. 2.

At noon of this day patient had another movement of the bowel, passing a safety razor blade and another eyelet. The movement was not accompanied by discomfort or bleeding.

**MEASLES IN TWENTY-TWO AMERICAN CITIES, 1885-1923**

For seventeen years following the year 1885, the measles deathrate in twenty-two American cities fell at a rate of nearly six per cent. per year. There was a marked slackening in the rate of decline after 1901, however. Between 1901 and 1923, the deathrate fell only three per cent. per year. So far as can be determined from the available data, a further slackening in downward trend is in prospect; and perhaps during the next five years an average deathrate of about seven per 100,000 will be experienced. Beyond 1930, a five-year average of about five per 100,000 may be expected. This deathrate may be the minimum attainable with existing facilities for control in these cities, and is suggested by the trend of the whole period since 1885.—*Statistical Bulletin Metropolitan Life Ins. Co.*

## THE DISTRIBUTION OF INSULIN\*

BY EUGENE R. KELLEY, M.D., BOSTON

THE life saving power of insulin in certain crises in diabetes has been proven beyond question. It has also been shown that the prevalence of deaths from diabetic coma is greater and the per capita consumption of insulin is less in the country than in the city. For this reason the Department of Public Health welcomes the opportunity to distribute in the near future one hundred units of insulin to every physician outside of Boston. This distinction is made because insulin has already been generally available to the profession in Boston, as in other larger centers. The distribution is possible through the coöperation of Dr. Elliott P. Joslin, to whom Mr. John D. Rockefeller, Jr., entrusted part of a fund for the purchase of this material. There follows a brief statement of this matter by Dr. Joslin.

### THE ELIMINATION OF DIABETIC COMA IN MASSACHUSETTS

BY E. P. JOSLIN, M.D., BOSTON

Deaths from diabetic coma are needless, because coma is both preventable and curable in the overwhelming percentage of cases. Yet in its report of 500 fatal cases of diabetes the Metropolitan Life Insurance Company states: "Of the complications in these fatal cases, coma was the most frequent, being certified in 46 per cent. of the cases. In a series of 58 cases when no other complication than coma was present, 21 were not given a single dose of insulin . . . Insulin was apparently much more commonly used in cases receiving hospitalization than in cases where treatment was given at home. . . . Finally, insulin is more extensively used in the larger centers of population than in the rural areas or smaller towns. In the former about half the cases received insulin, whereas in the rural areas only about one-third received insulin." It is so easy to die of coma and yet it is so easily prevented and so successfully treated that we should abolish it as a cause of death in Massachusetts.

The abolition of coma is practicable. For several years, even before the discovery of insulin, deaths from this cause have been growing less frequent in the better hospitals. Since the introduction of insulin, Petrén in Lund, Sweden, writes me that of 27 coma cases he has lost but one, and at one of the hospitals in Boston there were but two deaths from coma among the 30 treated. In 1923 and 1924 there were admitted to these institutions 1481 diabetic cases, representing 1743 admissions. Deaths from all causes amounted to 48.

If diabetic coma can be abolished in hospitals it can also be abolished in the home. Here diabetic coma originates, and treatment, begun at

an early stage, is more hopeful than after a patient has taken a tiresome journey to a hospital. The difficulties attending the treatment of diabetic coma in the home are great, but the greatest obstacle of all, yet fortunately the one most easily surmounted, is the lack of insulin. Only recently a physician in country practice telephoned that he had seen late the previous night a patient whom he suspected of being on the verge of diabetic coma. Insulin was not available, and the next morning he found the woman unconscious. Although he was most assiduous in the use of insulin when it arrived, dividing his time between the diabetic and another woman in labor, the patient died. If this physician had had a bottle of insulin in his bag the night before, treatment would have commenced at once, and it is reasonable to assume that the patient would be alive today. Many other tragic examples of needless deaths from diabetic coma could be cited.

Some two years ago, through the generosity of Mr. John D. Rockefeller, Junior, a large sum of money was distributed for free insulin in various states of the United States. Of this a most liberal portion was donated to Boston, and although in the intervening period grants have been made from this fund to larger hospitals in the city, a sum remains sufficient to provide a large number of physicians in the State with insulin in such form that they can carry it with them and have it ready for emergency use. By this means a distribution of "Doctor's Emergency Insulin" becomes possible. Such a bottle will contain 100 units and this quantity of insulin should suffice for the temporary treatment of a case of diabetic coma until a further supply can be obtained. None will be sent to Boston physicians, because already for two years insulin has been given to patients in Boston treated at the Boston City Hospital, the Massachusetts General Hospital, the Peter Bent Brigham Hospital and the Homeopathic Hospital. However, any physician in Boston who requests a bottle of the convenient "Doctor's Emergency Insulin" can obtain the same by sending a request to the New England Deaconess Hospital.

Insulin keeps. It is therefore perfectly practicable for a physician not only to carry insulin in his bag for a year without deterioration, but to have an additional supply in his office. In one instance a patient kept his insulin in an upper bureau drawer for 11 months and then proved it to be as efficacious as the most recently manufactured insulin on the market. Another carried her insulin to Europe and nearly a year later on her return there was no evidence of any loss of its potency.

The need for the prevention of deaths from

\*From the Massachusetts Department of Public Health.

diabetic coma in Massachusetts and for an improvement in our treatment of diabetes generally will be recognized in the light of our statistics. During 1923 852 deaths from diabetes were reported in the State, and among this number there were 96 in which coma was given as a complication. In 1924 there were 772 deaths classified as "diabetes." Information as to the number of these in which coma was mentioned is not at present available.

The abolition of coma in Massachusetts is particularly appropriate because the physicians of this State have employed insulin more generally than the physicians of any State in the Union. They are therefore on the average not only versed in the treatment of diabetes, but more generally versed in the treatment of diabetes with insulin than physicians in other states. It therefore becomes almost a duty for Massachusetts physicians to show what can be done with insulin, not only in diabetes but especially in diabetic coma.

Diabetic coma should be looked upon as an accident and hence avoidable. It is due to overeating either of food or of the body itself at a stage of the disease when the quantity of carbohydrate burned is insufficient to counteract the simultaneous burning of fat and protein. Thus it has an exogenous origin, which we all recognize in the instance of the diabetic who breaks his diet and dies. Its endogenous origin is not generally recognized. This has its best illustration in the development of diabetic coma in a patient who simultaneously with the diabetes has a high metabolism, as in exophthalmic goitre or in fever due to general or local infections. Coma of exogenous origin is preventable, coma of endogenous origin is usually preventable, but coma of either origin demands insulin and a knowledge of how to prevent it.

The prevention of diabetic coma, due to acidosis, as taught by various members of the Staff at the New England Deaconess Hospital, is as follows: Realizing that a patient cannot detect its onset, he is instructed whenever he feels ill from any cause whatsoever (1) to telephone his physician, (2) to go to bed, (3) to get someone to wait on him and thus reduce unnecessary exertion, (4) to drink hot liquids, a cupful an hour, of water, coffee, tea, broth, or water oatmeal gruel, (5) to keep warm, and (6) to take an enema.

The further treatment of coma begins with the arrival of the doctor. First of all he concentrates on the diagnosis and though the patient is a diabetic and may have sugar and acid in the urine, proves to his own satisfaction that the coma is due to diabetic acidosis and is not to be explained by uremia, apoplexy, meningitis, acute infections, or drugs. Second, insulin is administered in 20 to 40 unit doses subcutaneously, often in 40 unit doses, particularly if one is dealing with a diabetic known to be severe. The dose is repeated in hourly intervals of 20 to 40 units until the sugar in the urine is clearly

diminishing, when the interval is lengthened to two hours and the size of the dose is reduced. The bladder is catheterized and emptied each hour for the urinary test. Comparatively large doses of insulin must be continued for several days until the patient returns to his customary state. Blood sugar tests are done, too, but as yet not before each dose of insulin. Keifer has devised a simple method for testing blood sugars at the bedside.\*

The injection of salt solution subcutaneously is considered of the greatest importance in order to afford sufficient liquid for the patient. Most coma cases receive two "subpectorals"; one of the severest cases received four without any recollection of them after she had recovered. All the patients are kept warm. All have an enema and usually salt solution by rectum. All are given caffeine. Most are given gastric lavage, though this is done with great care, because death from this procedure has been reported. It is always worth while to work over a case of diabetic coma. Even an infant or an old woman may recover. Frequently the case proves to be a recent and a mild diabetic who has ignorantly and innocently gone astray. The treatment of coma is a day and night proposition for the first 24 hours. One must watch for a relapse into coma and be on the lookout for an overdose of insulin leading to an insulin reaction manifested by nervousness, pallor, occasionally diplopia, hunger, tremor, sweating, and, if unrelieved, unconsciousness. If one is cautious this latter condition seldom develops. It can be counteracted by a little carbohydrate such as a few teaspoonfuls of orange juice or corn syrup or an equal quantity of sugar given by mouth, rectum, or even 5 or 10 grams of glucose given in sterile solution intravenously.

The diet of the patient in the first hours of recovery from coma consists of simple food, and this means carbohydrate. Our patients seldom take over 50 grams in 24 hours. This is given as thin oatmeal water gruel, which contains about 4 per cent carbohydrate, ginger ale, about 5 per cent carbohydrate, or orange juice, 10 per cent carbohydrate. So many cases of coma come for treatment that to prevent confusion we have adopted a chart so that all details of the treatment can be clearly recorded each hour. It is essential that records of diet, urine, and blood be synchronized.

Every physician should carry a bottle of insulin in his bag. The early life-saving dose should be given when it will do the most good. The time lost in securing insulin may mean the death of the patient. One cannot wait until morning for insulin. If needed at all, it is needed now.

Let us abolish death from diabetic coma in Massachusetts.

\*The apparatus can be purchased<sup>1</sup> of the Emil Greiner Company, New York City. See Journal A. M. A., 1925, Vol. 84, p. 155.

**Case Records**  
**of the**  
**Massachusetts General Hospital**

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN  
 WEEKLY CLINICO-PATHOLOGICAL EXERCISES

EDITED BY  
 RICHARD C. CABOT, M.D., AND HUGH CABOT, M.D.  
 F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 11201

MEDICAL DEPARTMENT

A Russian of forty, a laborer in a woolen mill, entered February 14. He did not speak or understand English. The history was obtained from a friend. The chief complaints were dizziness and vomiting.

Except for diphtheria at ten, a very light attack of influenza at thirty-three and considerable alcohol his past history was unimportant. He denied venereal disease.

Two weeks before admission he began to have dizziness and pain in the lower sternal region radiating downward to the left in the general direction of the costal margin, never to the right or the back. At the onset he was nauseated but did not vomit. Since the onset but not with it he had had some chills, had felt very hot on several occasions, and had vomited repeatedly, lately as often as fifteen times a day. On the second day his skin and sclerae became yellow. He was more jaundiced at first than later. During the illness he had had general malaise. On the fifth day he began to have nosebleeds, which had persisted. On one occasion he vomited and then had some hematemesis of bright blood. He had lost all appetite. For the past few days his skin had itched. He had had diarrhea due he thought to salts. He had not lost weight. He had had some paresthesia, more in the hands than in the feet. He had not been exposed to lead or arsenic and had used no Weldona or other drugs.

Examination showed a well nourished, muscular Russian markedly jaundiced and sick looking. There was dried blood in both nostrils. The sclerae were deeply icteric. There was some pyorrhea. In the right cheek was an area of leukoplakia. The lungs were clear. The apex impulse of the heart was felt in the fifth space 8 cm. from the midsternal line, half a centimeter outside the midclavicular line. The right border of dullness was two centimeters to the right, the supraventricular dullness four centimeters. The rate was 90, the action regular. There was a double first sound plus a systolic murmur best heard at the pulmonic area. A pulsation was to be seen about at the manubrium. A slight systolic thrill was felt in the right neck just above

the clavicle. The blood pressure was 200/115 to 130/75. The pulses and arteries were normal. The abdomen was much distended. The liver edge was palpable. One of three examiners found some tenderness in the left lower quadrant. There was slight dullness in the flanks which seemed to shift with position. In the left groin was a red area with a foul exudate, diagnosed by a skin consultant as probably epidermophytosis. The left abdomen felt rather hard. The patient felt rather hot, but the rectal temperature was repeatedly found to be about 97.5°.

During the first four days in the hospital the temperature ranged from 97.5° to 101°, afterwards from 101.2° to 105°. The pulse was 75 to 136, the respiration 19 to 31. The amount of urine was 82 to 32 ounces when recorded, the specific gravity 1.012 to 1.008. One of four tests gave a neutral reaction. All showed a slight trace to a very slight trace of albumin, 2-10 leucocytes per high power field, 2-15 red cells. The renal function showed a trace. The hemoglobin was 55 to 50 per cent., the leucocytes 16,000 to 25,000, the reds 2,700,000 to 2,570,000. There were 89 per cent. polynuclears, 10 per cent. reticulated cells. The reds were normal in size and shape. There was slight achromia. The platelets were normal. A Wassermann was negative. The clotting time was 12 to 16 minutes, with calcium chloride 12 minutes. Clot retraction was good in two hours. The non-protein nitrogen was 250 February 15, 200 February 18, 148 February 24. Fragility test showed that hemolysis began at .38 and was complete at .22. The bleeding time was 10 minutes. The amino acids were 5.1 mgm. The uric acid was 12.6 mgm., the creatinin 9.8 mgm. The stools showed a very strongly positive guaiac at two examinations, questionably very strongly positive at a third. Bile test was positive at one.

A surgical consultant reported on the day of admission, "There is I believe fluid in the abdomen, and the liver is enlarged. The color of his sclerae is out of proportion to the amount of bile in the urine. I can find no masses in the abdomen. Perhaps a liver function test and a bilirubin would be of interest." An ear consultant reported, "Both ears red and bulging. Advise paracentesis of both under local anesthesia. No postaural tenderness, edema or thickening. Advise X-ray of mastoids." X-ray showed a little more sclerosis of the right mastoid than of the left. An oculist found no albuminuric retinitis. The right fundus was normal. The left showed three various sized superficial hemorrhages near blood vessels. The vessels themselves appeared normal, not tortuous.

With the temperature beginning February 17 there was some precordial pain. No rub was found, and nothing in the chest. On the 19th there was recurrent epistaxis and a purpuric eruption on the left forearm. February 21 both

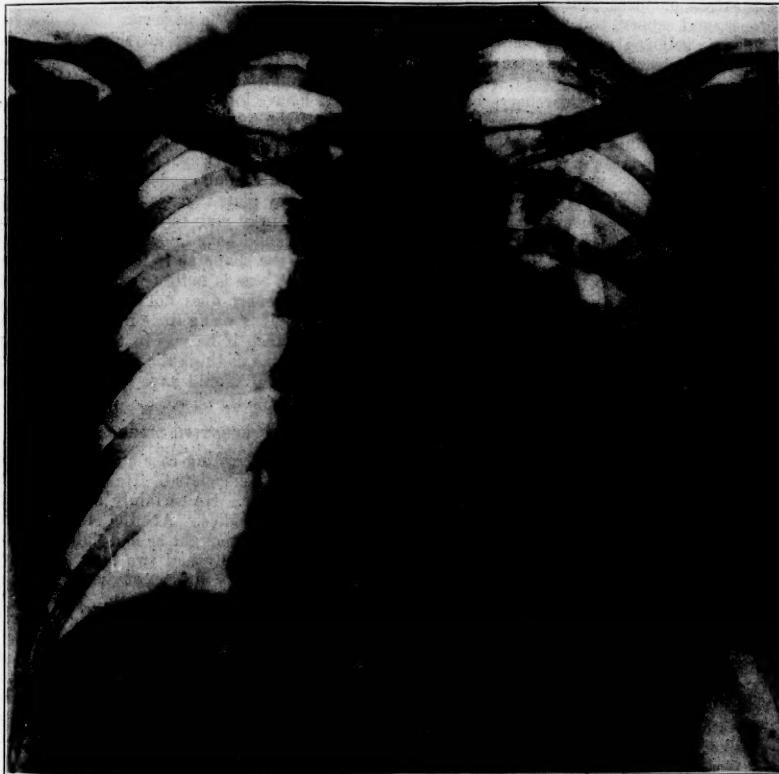
ear drums were incised and pus obtained. Two days later there were signs in the left lower chest suggestive of fluid, but presumably consolidation. There was some pain. Nevertheless he looked rather better. His friends now gave a history of extreme alcoholism, debauches three days a week, presumably with dubious alcohol.

DISCUSSION

BY DR. RICHARD C. CABOT

NOTES ON THE HISTORY

1. Nothing brings out any more clearly the importance of the history as a factor in diagnosis



Shows an area of somewhat mottled density involving the left base and obliterating the outline of the diaphragm. The outline of the upper border of this area is sharply defined. The whole left side appears somewhat retracted, whereas the right side is increased in brilliancy. The negative is defaced.

February 25 the lung signs were more marked. X-ray showed an area of somewhat mottled density involving the left base and obliterating the outline of the diaphragm. The outline of the upper border of this area was not sharply defined. The whole left side appeared somewhat retracted, whereas the right side was increased in brilliancy. The patient became comatose and developed muscular twitchings and Cheyne-Stokes respiration. That evening he died.

than the fact that our proportion of mistakes here rises as soon as we tackle a case like this, in which the history is obtained through somebody else or in which people come in unconscious and we have to go on the physical examination alone.

2. "Weldona" is mentioned here because we have had a series of cases of acute yellow atrophy of the liver in people who had taken it.

3. The outstanding features up to the beginning of the physical examination are jaundice,

chills or fever or both, with epigastric and left-sided pain. That is, the dizziness does not seem to be mentioned later in the illness. I assume that it is not important. It probably is connected with the nausea. People often become dizzy just before they are going to be nauseated, as in seasickness.

4. Our initial guesses, then, deal with the commonest causes of brief jaundice, "catarrhal," gall-stones, and cancer, and with the rarer ones, such as acute yellow atrophy, cirrhosis, syphilis, septicemia, abscess of the liver with hydatid in the background.

I did not speak of the hemorrhages because I think there is every reason to suppose they are secondary to the jaundice. A hemorrhagic tendency is almost universal in jaundiced patients.

#### NOTES ON THE PHYSICAL EXAMINATION

When one comes to percuss a half-centimeter it is a degree of proficiency beyond the power of my imagination. I cannot percuss it. I do not believe anybody can. So the apex impulse was about the nipple line.

This thrill has no significance. We often feel thrills in this place.

How many blood pressure measurements intervene between the two given here?

DR. E. H. HEATH: The 200/115 was the first one taken. There was an intervening one of 165/93. Then there was one in the Out-Patient Department that was 200. There were four in all.

DR. CABOT: Two were high, one rather high, and one normal. There is nothing here for which we can accuse the heart of disease. It may be a little enlarged. Especially with such a pressure as this we suspect it, but we have very little evidence.

One examiner found tenderness in the left lower quadrant, but two did not.

As a rule when we cannot say anything more definite of abdominal dullness than that it "seemed to shift" we would better disregard it. We can find "slight dullness which seems to shift with position" in almost anybody.

I am not familiar with epidermophytosis.

DR. HEATH: That was just an irritation of the groin. It was probably an infection by a fungus, but aggravated by irritation and lack of soap and water.

DR. CABOT: Nobody got excited over it?

DR. HEATH: No.

DR. CABOT: Perhaps his previous chills were not any different from his fever. How many urine examinations were there?

MISS PAINTER: There were four.

DR. CABOT: Four examinations, all with a gravity between twelve and eight. That is a strong suggestion of fixation of gravity even though we have no definite test made with that in view. We should have a chronic nephritis or a destructive lesion of the kidneys.

Ten per cent. is a very high number of reticulated cells, a tremendous amount of regeneration in the marrow. This is a very queer blood.

The non-protein nitrogen tests were all high.

Uric acid and creatinin are much increased. It is still the fashion to do these tests. I do not believe there is anything in it. Somebody at one time maintained that a high creatinin would show up renal trouble when other constituents were not so high. We have not had a case here that I know of that shows anything of the kind. The high creatinin and uric acid have gone parallel with high non-protein nitrogen in every case that I have known of in our post-mortems.

I take it the sclerosis was of no importance.

The chest examination on February 21 is put in a rather unusual way. But I think there is a good deal of common sense in it.

In the X-ray plate there is the area of dullness said by the X-ray man to be mottled. I do not feel sure I should have known it. It would look to me from the shape as if it were fluid rather than solid. There is nothing wrong at the lung apices. The heart does not look big, but does look to me as if it was a little pushed over to the right side, which if he was in the upright position would make us think the shadow due to fluid and not solid. I should have said fluid if I had been left to myself.

#### DIFFERENTIAL DIAGNOSIS

This is an interesting case and to me a blind one. He is not emaciated. He apparently has an enlarged liver. He certainly has a bad anemia and a jaundice. At the last physical examination they thought he had fluid in the abdomen. He certainly had two high blood pressures. He certainly has a zero renal function, and apparently a fixed gravity. So that the lesion that looks clearest is chronic nephritis. If there are other lesions, for instance liver lesions, that can give zero function I have never heard of them. I think we have to say chronic nephritis. The question is, what else? Chronic nephritis does not give us all the rest of these signs; especially it does not give us such a jaundice.

DR. HEATH: I think it is only fair to say that my physical examination was made in the Emergency Ward and I emphasized the jaundice too much.

DR. W. D. SMITH: I thought it was definite jaundice, not deep. There was never bile in his urine.

DR. HEATH: I can vouch for the low blood pressure and the high ones too, in both arms, both times.

DR. CABOT: Nobody doubts that he had jaundice, but nephritis does not produce jaundice. We have to suppose something besides nephritis. He had this double otitis, which perhaps is enough to account for his jaundice. Septicemic jaundice is not rare, and there is good reason to

think he had a septicemia. I am interested in the question of why they had a surgeon in this case. I suppose they don't have one in every case now.

DR. SMITH: I don't remember. I guess just on general principles. I never thought the case was surgical.

DR. CABOT: Nobody felt the spleen so far as I know.

DR. SMITH: Nobody felt the spleen.

DR. CABOT: We have no reason to think of splenic anemia, which otherwise his hematemesis might make us think of, as well as his anemia and his ascites.

DR. RICHARDSON: Wasn't there a remark about one of the quadrants?

DR. CABOT: One man said that he was hard in his left lower abdomen.

DR. SMITH: I think everybody who felt of his belly had a different idea about it. There was even some question whether we really were feeling his liver or not.

DR. CABOT: I don't think the local pain at the beginning amounts to enough to make us consider that as of importance in pointing to a local non-renal lesion. It seems to me that aside from the jaundice the history might go perfectly well with nephritis alone. Whatever there was in this chest, whether fluid, as I should be inclined to suspect, or solid as the X-ray people say, I do not believe is important in relation to the cause of his death unless as a terminal event. They evidently thought there was terminal pneumonia or terminal pleurisy. It is certainly terminal.

The chart is worth seeing. The temperatures were taken by rectum, but still they are high right along and high for a week. The pulse was rather strikingly low considering how high his temperature was and how sick he was. It never went beyond 120 until the last hours of life. The ear consultation was just before his temperature went up on the 17th. His respiration was strikingly low. If we are thinking of pneumonia, as we must be, we ask, why didn't he have more respiration?

Among liver lesions the things we naturally think of are cirrhosis and acute yellow atrophy; a chronic hepatitis or an acute hepatitis. We have the etiology that I believe truly goes with chronic hepatitis, cirrhosis, and I do not see how anybody can absolutely exclude cirrhosis. At the same time I will say this: I do not remember a single case proved here to be death from cirrhosis in which the patient was well nourished. We often see cirrhosis in well-nourished patients during life, but not when they come to death. That fact weighs strongly against the diagnosis of cirrhosis here. On the other hand acute yellow atrophy is so acute that we often do see it in well-nourished patients, and with acute yellow atrophy we do see ascites, we do see anemia. I cannot exclude acute yellow atrophy, but I do not think it is enough to account for his death.

I never heard of its giving any such renal picture as his urine apparently shows.

Or the whole it seems to me simpler to say (1) he had a chronic nephritis and he has died essentially of chronic nephritis. He also had (2) a septicemia which involved his ears, his respiratory tract with either pneumonia or acute pleuritis, and was the cause of his jaundice, leaving the liver out of account. That seems to me on the whole simpler. He may have had three separate things, chronic nephritis, some type of hepatitis, and sepsis. Those are all perfectly possible. But as we can account for the case with two, I think on the whole it is safer to call it two than to call it three. If his liver is involved I believe it is acute yellow atrophy and not cirrhosis. That is as far as I can go.

A PHYSICIAN: Would you consider a pernicious anemia during remission? In this case the color index is quite suggestive.

DR. CABOT: That is true if you consider that one point alone. But taking the whole history it does not sound like it. In pernicious anemia with remission we have had a long previous history. While it is true that the man may have had anemia a good deal longer than he knew he had, more than two weeks, still the history is not like pernicious, nor the death. The history is given by his friends, and so far as I am resting on that I am on an insecure foundation.

DR. M. FREMONT-SMITH: Is it possible that with chronic nephritis the elimination of the bilirubin through the kidneys might be diminished just as the excretion of phenolphthalein is often interfered with?

DR. CABOT: That is a new idea to me. I am not saying it does not happen.

A PHYSICIAN: Would you consider typhoid fever at all?

DR. CABOT: I have not considered it and I do not believe I ought to. We should have to say typhoid complicated by an otitis media. One of the striking things in typhoid fever is that even an otitis media usually does not raise the white count. It does have anemia, but very seldom. So with the jaundice. We should have to have a great many things added to the diagnosis of typhoid. Then one does not die so quickly with typhoid unless from hemorrhage or perforation. We have no evidence of these. Again he is well nourished, and that is against typhoid. So I think we can rule it out.

A PHYSICIAN: Is this rapid destruction of the red blood corpuscles common in nephritis?

DR. CABOT: No. The anemia of nephritis is a slow-going anemia. But I think we can certainly suppose that he may have had anemia going on for some time. Then his sepsis, which I believe to be an acute sepsis, is a very rapidly destroying agent on red blood cells.

A PHYSICIAN: Then I think he had some blood loss. I remember some positive guaiacums.

DR. CABOT: That is true. I should have taken

account of that. He has, then, three things favoring anemia, nephritis, blood loss, and sepsis.

**A PHYSICIAN:** Would you consider pylephlebitis?

**DR. CABOT:** The safe way with a diagnosis of pylephlebitis is to begin with the question of a cause. I do not know of a diagnosis of pylephlebitis made correctly unless we have had some record of a cause. Appendicitis is the commonest cause, the second suppuration in the biliary tract. The cases I remember have had more obvious ascites than this and they have had a more obvious etiology. But I think it is a good suggestion. I had not thought of it, and I think I should have thought of it. It should be mentioned in the differential diagnosis. But I should rule it out. Pylephlebitis would not account for his anemia. But we can say that that is to be accounted for in some other way. It would not account for his kidney condition, but we can say he had that plus pylephlebitis.

**DR. YOUNG:** He should not be jaundiced first, as this man is said to be.

**DR. CABOT:** I have seen jaundice in pylephlebitis. But I do not see why its intensity should go down near death. It ought to go up. Then the fact that a first-rate surgical man went over him and did not feel anything in his abdomen is against pylephlebitis. In all the cases I have known they have felt something.

**DR. YOUNG:** It can occur from such a slight primary cause that nothing can be felt. It is not common, but I remember two cases I knew of that were seen by a surgeon and neither the primary cause nor the actual condition recognized, and necropsy showed it.

#### X-RAY INTERPRETATION

Pneumonia, left base.

#### CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Acute nephritis with uremia.

Hepatitis, aleoholic.

Bronchopneumonia.

#### DR. RICHARD C. CABOT'S DIAGNOSIS

Chronic nephritis.

Sepsicemia.

#### ANATOMICAL DIAGNOSIS

##### 1. Primary fatal lesion

Lobar pneumonia of the left lung.

##### 2. Secondary or terminal lesions

Fibrinopurulent pleuritis, left.

Edema of the lungs.

Acute pericarditis.

Slight icterus.

Slight fibrinous peritonitis.

Central degeneration of the liver.

Slight hypertrophy and dilatation of the heart.

#### 3. Historical landmarks

Chronic pleuritis.

Obsolete tuberculosis of the bronchial lymph glands.

Slightly defective closure of the foramen ovale.

**DR. RICHARDSON:** In this case the history states there was otitis media. There was an acute pericarditis and pneumonia. Unfortunately the blood culture was contaminated, but the evidence for a septicemia seems sufficient based on those three conditions.

There was a slight amount of icterus. There was a small amount of thin cloudy fluid in the peritoneal cavity with some fibrin (200 c.c.), and the peritoneum of the small intestine was coated in places with small patches of fibrinous exudate,—a certain amount of peritonitis.

The pleural cavity on the right was obliterated by adhesions. The adhesions were wet. On the left side there was a small amount of thin purulent fluid and a few old adhesions posteriorly.

The bronchial glands showed some obsolete tuberculosi. The right lung showed much hemorrhagic edema. The lower lobe of the left lung was solid, voluminous, and showed frank lobar pneumonia with exudate on the pleura. Microscopic examination of the solid lung showed a frank pneumonia.

The pericardium contained 50 c.c. of thin purulent fluid and showed patches of fibrinous exudate,—an acute pericarditis. The heart weighed 385 grams,—slightly enlarged,—but the myocardium, valves and cavities were frankly negative. The circulatory apparatus generally was negative.

The liver weighed 1525 grams,—not enlarged,—the surface smooth, but the tissue generally was punky and showed a pale brown background dotted over with dull brown lobules. There were no tumors and no abscesses. The further examination showed very marked central necrosis scattered through the liver.

The spleen weighed 185 grams, a little soft, otherwise negative macroscopically and microscopically.

**DR. CABOT:** So far as your examination goes we have to say that the anemia, which was very considerable, was due to sepsis and hemorrhage. There was no other cause found in the body, was there?

**DR. RICHARDSON:** No, unless the hepatitis or whatever we call the liver condition would produce it.

**DR. CABOT:** Wouldn't that be thought of as secondary to the sepsis too?

DR. RICHARDSON: It seems too extensive for sepsis.

DR. HEATH: According to his history nosebleeds had been very prominent. I think it was our idea that they accounted for the anemia.

DR. RICHARDSON: It is to be said that the stuff they drink now contains so many toxic things that the liver might very well be affected.

DR. YOUNG: Do you ever see such a liver from sepsis alone?

DR. RICHARDSON: You may find central necrosis, but not so extensive as in this case.

DR. CABOT: Then your best guess is that there are two different factors, one acting on the liver or in the liver, and the other general sepsis.

DR. FREMONT-SMITH: Was the prostate examined?

DR. RICHARDSON: Yes; it was negative.

DR. YOUNG: Isn't this almost the only case we have had where Dr. Richardson has shown good kidneys and the report of the red test was practically zero?

DR. CABOT: My impression is that we have had one other. But I do not remember such a high blood pressure, an essentially zero renal function and a high nitrogen.

DR. HEATH: He seemed to have hyperpnea at times and twitchings at others, which made us think of uremia.

DR. RICHARDSON: From the gross appearances of the kidney I rather expected to find some glomerular changes, but microscopically no definite lesions were made out.

DR. CABOT: I think it is interesting to ask ourselves, though we cannot do anything but speculate, what did give him zero renal function? If it was not nephritis, what was it? Can liver disease have anything to do with such a function as that?

DR. W. D. SMITH: With respect to the underlying sepsis the impression was that he was not septic when he came in, but that his resistance became low and he got infected.

DR. CABOT: The chart looks like that. He comes in with a normal temperature and then he gets infection and fever. So that he had something else besides sepsis, and Dr. Richardson seems to think that something is hepatitis. But the still unanswered question is, what gave him such a renal function and such a blood pressure? I do not know. I do not seem to remember much about the renal functions in previous cases of acute yellow atrophy. I think I should have remembered it if there had been any as low.

DR. SMITH: One thing that upset us was that the non-protein nitrogen kept coming down and the blood pressure kept coming down. The sicker he got the better he got.

DR. CABOT: That would not be surprising with blood pressure; it often does. I do not recall it with non-protein nitrogen; it usually goes the other way.

A PHYSICIAN: There are four very strongly

buttressed findings, blood pressure, renal function, gravity and nitrogen.

DR. CABOT: Yes, it is a very strongly buttressed diagnosis. His kidneys certainly were not doing their job. What that seems to mean is that without kidney disease we can have a kidney that is not doing its job. They had four high non-protein nitrogen reports, two high blood pressures, and so far as I know one test of function. They had so much else that there was no reason why they should repeat it, it was so securely buttressed a diagnosis.

#### CASE 11202

##### MEDICAL DÉPARTEMENT

An American clerk of fifty-two entered December 31 complaining of malaise of four weeks' duration. He answered questions intelligently but slowly. His speech was thick and slurring. His father died of "shock." His wife had had two miscarriages and lost one child shortly after birth. The patient took an occasional glass of whiskey, but did not get intoxicated. At eighteen, twenty and twenty-two he had rheumatic fever. He had very occasional heartburn.

Four weeks and a half before admission when feeling perfectly well he caught "grippe." He stopped work and went to bed for a few days, feeling feverish. His wife added that he was sleepy, uncommunicative and hard to arouse. There was no diplopia. After getting up he did not recover, though he had no definite symptoms. His wife said that he did not regain normal mentality, but had remained in some torpor. For six days his neck had been fairly stiff and on bending painful. He had been very weak. His limbs had been stiff. Two or three days before admission he again had some fever. He was very weak when he tried to walk or move. His bowels had moved only two or three times a week since the onset. He had eaten almost nothing, partly from lack of appetite, partly because after eating he had a "beating" sensation or sense of pressure in his stomach. He was able to go to his doctor's office as recently as December 27.

Examination showed a fairly well developed, rather poorly nourished man with an immobile face. The tongue showed marked tremor. The arms and legs were spastic. All the reflexes were increased. No impairment of sensation was made out. There was a large ulcer on the right leg said to be due to a burn. The pupils were slightly irregular but reacted. The rest of the examination was normal.

The temperature was 101.4° to 105.4°, the pulse 80 to 140, the respiration 58. The amount of urine was not recorded. The specific grav-

ity was 1.022 to 1.026. Two specimens, one taken by catheter, showed a slight trace to a trace of albumin. The catheter specimen showed one or two leucocytes and one or two red blood cells per high power field. The hemoglobin was 80 per cent. The leucocytes were 11,000 to 9,000, the polynuclears 77 per cent.

In the ward the patient's temperature came down, but he showed no other improvement. January 2 an eye consultant found a low grade conjunctivitis. The fundi showed old slight choroidoretinitis with slight pigmentary changes but no papilledema. A lumbar puncture gave 15 c.c. of clear colorless fluid, initial pressure 110, jugular compression 240, dynamics normal; after withdrawal of 10 c.c. more pressure was 70, after withdrawal of 5 c.c. more 40. There were six cells. Alcohol and ammonium sulphate were slightly positive, Wassermann negative, total protein 38, goldsol 0123211000, sugar 84, chlorids 737, blood sugar 118.

Dr. Frank Fremont-Smith said in consultation, "The history suggests an infectious process of five weeks' duration. The cerebral symptoms point to the basal ganglia, but the history is atypical for encephalitis lethargica and the symptoms may be part of a general toxic reaction. Has typhoid fever been ruled out?"

January 3 signs of pneumonia developed in the left lower lobe. Emergency X-ray films were not satisfactory because of motion. The left lower chest however appeared somewhat increased in density. The outline of the diaphragm was not visible on this side, perhaps because of motion and position. The evening of January 4 the patient died.

#### DISCUSSION

BY DR. MAURICE FREMONT-SMITH

#### NOTES ON THE HISTORY

The fact that his wife had had two miscarriages and had another death shortly after birth would suggest the possibility of syphilis.

After three attacks, if they were really rheumatic fever, it would be unusual for the heart to escape. The likelihood of the heart being involved after a second attack of rheumatic fever is more than twice as great as it is after one attack.

The history of a grippy attack followed by sleepiness and difficulty in arousing is rather typical of the onset of encephalitis lethargica.

#### NOTES ON THE PHYSICAL EXAMINATION

We have a picture of a man in a drowsy, stuporous state running a temperature of 101°, a pulse of 80, a white count of 11,000, a practically negative urine and a history of four weeks' duration. The first thing that does come to mind is encephalitis.

It is unusual for encephalitis to run a fever over this length of time. Usually the fever is very early and sometimes missed. It may be that the patient has a bad cold or slight attack of grippe, runs a temperature for a few days, and the other symptoms that are untoward appear after the fever has gone. When the physician is called in and finds a man with signs that make him suspect encephalitis there is often some difficulty in finding out whether there was fever or not. It does happen that fever in encephalitis will recur. It is quite possible here that the man was running no fever in the interval and came in either with a recurrence of the fever of encephalitis or with some other cause for fever.

Encephalitis may start in extraordinarily different ways. It may come on very insidiously. The patient has the grippe and grows gradually more and more sleepy. It may come on very suddenly, with definite coma. It may simulate polioencephalitis. It may come on with intense pain. There are cases of encephalitis that begin with intense pain in the arm and chest, occasionally radiating down the arm. Encephalitis is seen with athetoid movements, marked tremor and choreiform movements, and then of course the Parkinsonian syndrome, though usually late, may come on early. The pathology of the disease is a diffuse periarteritis and round cell infiltration of the brain. The lesions are found in the basal ganglia and are also found in certain cases in the substantia nigra. There have been only about forty-five necropsies done in the particular type of encephalitis that we are considering, that with Parkinsonian symptoms. In this type the chief symptoms are rigidity, loss of the associative movements and to a lesser extent, tremor. It is characterized by coming on, in contrast to the real Parkinson's disease, early in life, that is, in the twenty-to-thirty year period.

Here we have a man with an immobile face. The tongue shows marked tremor and there is spasticity of the arms and legs. All reflexes are increased. That is the picture of general increase of muscle tone, which is the chief characteristic of the Parkinsonian syndrome. This syndrome has been reported frequently in encephalitis. It may come on quite early, as in this man. It may come on as one of the very late sequelae. It is extremely persistent. There is almost nothing that can be done to cure the situation. Hyoscin may be used symptomatically with benefit.

A PHYSICIAN: Is there anything in the condition to explain a respiration of fifty-eight?

DR. FREMONT-SMITH: No, unless we assume a secondary condition such as a beginning pneumonia, and even so that is a very high respiration.

MISS PAINTER: That was on the day of death only.

DR. FREMONT-SMITH: Then I think we can assume that that was due to a pneumonia.

The chart starts at 103°, then runs to 102° for several days, then up to 105°, then down, the pulse going right up to the end and the respirations starting on the second day to go up. He probably came in developing a bronchopneumonia or possibly a lobar pneumonia, although his white count is low.

The fundi showed no evidence of increased pressure, but did show evidence of an old exudative condition. A choroidoretinitis always makes one think of old syphilis, but can be due to other conditions, such as tuberculosis or apical dental abscess.

Of course we should like to have some evidence in history or physical examination of cranial nerve paralysis to clinch that diagnosis of encephalitis. On the other hand we have no way of knowing that it was not present. Very slight paralysis may escape the attention even of the patient.

The X-ray shows nothing on the right and some definite clouding at the left base, nothing to suggest fluid.

#### DIFFERENTIAL DIAGNOSIS

Of course the diagnosis lies to a large extent in the spinal fluid. The history is very suggestive of encephalitis. It is hard for me to see any other diagnosis. On the other hand there are cases of hemorrhage perhaps into the frontal region which can simulate encephalitis. Before we take up the question of spinal fluid, I remember very well one case that I saw in the Brigham Hospital: a woman who had a little temperature and then became very sleepy. She would answer questions but she was slow. She could hardly open her eyes. She had had no diplopia. A diagnosis of probable encephalitis was made. The spinal fluid I remember was normal. Normal spinal fluid does occur, and rather frequently, in encephalitis. After she had been in the hospital for weeks with that diagnosis one of the house officers became a little suspicious, sat down and talked with her, and discovered a situation in the family of such a definite emotional traumatic type—really a terrible situation—as to explain the symptoms on a hysterical basis. And as soon as the facts had been talked out and the woman had faced the situation frankly, she got up and went about her business. In other words it was hysteria, yet the differentiation from encephalitis was so difficult that she was in the hospital two weeks before the diagnosis was made.

DR. FRANCIS FREMONT-SMITH: Before I speak of the spinal fluid I want to say just a word about the picture as I saw the patient, and a note about my consultant note. The rigidity was very marked and the patient tended to hold

his hands in the "pill-rolling" position that we find in Parkinson's disease. The temperature on admission was 103°, and there was at that time no evidence of any pulmonary condition. Such a high temperature I felt was rather against a diagnosis of encephalitis lethargica. The man had been ill for five weeks and had had apparently fever for that time, although we could not be sure of it, and no evidence of cranial nerve involvement.

This morning I went over Osler's Textbook of Medicine on complications of typhoid fever, and I will read a list of central nervous system complications.

There is a meningeal reaction which may be a simple so-called meningismus, where the patient has the signs of meningitis with a normal spinal fluid. Or there may be a mild-grade meningitis with a few organisms and a few cells in the spinal fluid, and this may clear up or may go on to a suppurative meningitis and that again may go on to abscess. Twitching or convulsion may occur. We get in most cases a marked apathy. We may get a delirium which may be mild or may go on to maniacal conditions or may lead to coma, and occasionally such delirium or cerebral symptoms may lead to a lasting psychosis. There may be focal brain symptoms, hemiplegia or aphasia due to thrombosis of the cerebral vessels, local or diffuse. There may be acute poliomyelitis, which cannot be distinguished from the epidemic type. There may be chorea and neuritis, optic neuritis which may be followed by atrophy. These conditions undoubtedly are rare in typhoid fever. I was casting about for some other diagnosis than encephalitis, and typhoid was one of the ones that combined cerebral symptoms with prolonged fever.

Now as to the spinal fluid. The pressure was 110, a normal pressure. That is usual in encephalitis lethargica. We may get a slightly increased pressure, but a very high pressure is rare and suggests some other process. Jugular compression, that is, compressing the jugular veins, which obstructs the outflow of blood from head, raised the pressure in the manometer to 240, and the note is that the dynamics were normal. That is, there was no block, and nothing in the nature of a tumor in the cerebellum obstructing the outflow of cerebrospinal fluid in the ventricles. We are not dealing with low pressure below and high pressure above. We know that the pressure in the lumbar sac really represents the cranial pressure. After the withdrawal of five cubic centimeters the pressure was 70, after the withdrawal of five more, 40. If there was block we should get a more rapid drop in pressure than we got here. It might drop to zero if there were complete obstruction. In other words we should be tapping a small reservoir below the point of obstruction. In this case we know there is no

obstruction. Therefore the rather rapid fall of pressure is a strong point in ruling out a large reservoir, in ruling out any condition which has produced a hydrocephalus.

Such a small reservoir we could get in a tumor which does not cause obstruction but takes up brain space, or in a condition of edema of the brain, taking up brain space so that there is a small reservoir of fluid to draw from.

There were six cells,—the normal number of cells in the spinal fluid. There is a great deal of argument on that point. Some say anything under twelve cells is normal, and in France particularly they say that anything above three cells is abnormal. In this hospital I think Dr. Ayer considers six cells about the limit. Anything above twelve is definitely pathological. Between six and twelve is doubtful, and under six cells is considered a normal number of cells. So here we have perhaps a high limit of normal cells. In regard to encephalitis lethargica it is important to remember that the cell count is usually not high. It is somewhat elevated in perhaps forty to fifty per cent. of cases. There may be no cells. In a series of 279 fluid examinations only 28 fluids had over 100 cells, while in 7 the cells were over 200—the highest count being 650\*. Counts above 100 cells are rare, and I should say that a count of above 100 cells would be a point against encephalitis. That is an important differentiation, because the most common things from which one is apt to have to distinguish encephalitis lethargica are acute meningitis of some type, tuberculous meningitis, or poliomyelitis. In these conditions the cell-count is usually above 100 excepting for poliomyelitis, and there it is frequently above. So that a high cell count is against and a low one is in favor of encephalitis.

Thirty-eight is a high normal protein. Forty we consider the upper limit of normal, and there it is frequently above. So that a high cell count is against and a low one is in favor of encephalitis.

Thirty-eight is a high normal protein. Forty we consider the upper limit of normal, and anything over forty-five is definitely pathological. In encephalitis the variations from normal are usually slight. When we get a fluid that is grossly pathological in any respect that is a point against encephalitis. A fluid that is a little abnormal is what we expect in encephalitis lethargica,—a slight increase of cell count, a slight increase in protein, a slight change in any part of the gold curve such as we have here.

The chlorids are of normal figure (720-740 are normal limits). In acute meningitis of

any type the chlorids are low, usually between 660 and 700. In a poliomyelitis they are in the neighborhood of 700. Perhaps we could not make a differentiation on chlorids between poliomyelitis and acute suppurative meningitis of any type. In both those conditions the chlorids are down, while in encephalitis we have found the chlorids normal in a small series of cases. On the other hand in tuberculous meningitis, which in the early stages may be difficult to distinguish from encephalitis lethargica, the chlorids are low, nearly always below 640 mgm. per 100 c.c.

In this case the spinal fluid and blood sugar were taken simultaneously. They were not taken fasting, but if I remember correctly within an hour after the morning meal. That means that the blood sugar level is probably above the fasting level. From experiments we have found that the spinal fluid sugar responds to rises in blood sugar, but slowly, so that by giving sugar intravenously the spinal sugar will show gradual increase in two or three hours. The normal fasting spinal fluid sugar lies between fifty-five and sixty-five mgm. per 100 c.c. Here is a sugar of eighty-four possibly an hour and a half after a meal. I think we can say then definitely that the spinal fluid sugar is high. That is also frequently found in encephalitis. However, there has been I think an overemphasis on the specificity of the high sugar in encephalitis. We get as high figures or a great deal higher than this in a great variety of other conditions, in brain abscess, in brain tumor, in uremia, rarely in the very early stages of tuberculous meningitis (within the first week; later the sugar is low), in carbon monoxide poisoning, in cerebral hemorrhage. And where we have had an opportunity to study the blood sugar at the same time we find a high blood sugar. In other words, in many cerebral conditions there is a high blood sugar. The explanation for that I do not know, but the high blood sugar explains why we should and do find high spinal sugar. In encephalitis the spinal fluid sugar apparently is high without elevation of the fasting sugar level. Not enough cases have been studied to be sure of that point. It is a very important point in differentiating from the other acute infections of the meninges, because the sugar content drops very rapidly in an acute meningitis. Within twenty-four to forty-eight hours it is usually under 20 mgm. per 100 c.c. In poliomyelitis the sugar is normal. In tuberculous meningitis when the case is well established the sugar will be low. In the very early stages it may be high. It goes down to between twenty and forty mgm. in the majority of cases.

From the sugar then we can rule out any of the acute meningeal infections, and we have no reason to consider them here clinically. I should

\*Association for Research in Nervous and Mental Diseases, Paul B. Hoeber, Publisher, Vol. I, 1920. Acute Epidemic Encephalitis.

say then that the spinal fluid was entirely characteristic of encephalitis lethargica.

A PHYSICIAN: How often do you see encephalitis without diplopia?

DR. FRANK FREMONT-SMITH: It is I think uncommon,—I cannot give you figures on it,—but possibly less rare in the type which gives the picture of paralysis agitans in the very beginning. More commonly the paralysis agitans picture appears late in the disease. This patient had rigidity and stiffness from the outset, and if this is a case of encephalitis it is the paralysis agitans type from the beginning.

DR. MAURICE FREMONT-SMITH: My own feeling is that this is a case of encephalitis lethargica. I shall be interested to know what the heart shows, whether there is evidence of rheumatic heart disease here. I hope we have sufficient pathological evidence to show us where the lesion is in the brain, whether the basal ganglia and substantia nigra are involved.

#### CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Encephalitis lethargica.

Acute paralysis agitans.

Bronchopneumonia.

#### DR. MAURICE FREMONT-SMITH'S DIAGNOSIS

Encephalitis lethargica.

#### ANATOMICAL DIAGNOSIS

##### 1. Primary fatal lesion

Encephalitis lethargica.

##### 2. Secondary or terminal lesions

Purulent bronchitis.

Bronchopneumonia.

Acute pleuritis.

Hypertrophy and dilatation of the heart.

Edema of the pia.

DR. RICHARDSON: There was well marked extensive bronchopneumonia of the lower lobes of the lungs and some purulent bronchitis.

The heart weighed 460 grams, slightly enlarged for him. The valves and cavities were frankly negative and there was only a slight amount of fibrosis of the aorta and its great branches. So far as the trunk went all we found was well-marked bronchopneumonia, purulent bronchitis, and a heart slightly enlarged but otherwise negative.

Head. The pia showed some infiltration with thin pale fluid. The sinuses, cranial, ethmoidal, sphenoidal and the posterior nares, all were frankly negative. The middle ears and the pineal and pituitary glands were negative. The brain, which weighed 1300 grams, a fair weight, was in general negative. There was however some infiltration of the pia with thin pale clear

fluid and some fluid at the base. In the sections of the brain in places, well-marked in the basal ganglia and in the region of the substantia nigra, there were small pale diffuse reddish areas, and along the vessels, which were more or less injected, slender dark reddish streaks and small areas. Microscopic examination in the region of those areas, the pons, along the aqueduct of Sylvius and in the region of the substantia nigra, showed these areas and red streaks to be simply vessels with marked perivascular infiltration and infiltrating mononuclear cells. No definite degeneration of the brain cells was observed.

Anatomically it is a very well marked case of encephalitis lethargica.

In regard to large hemorrhages in encephalitis, we had a case here with quite an extensive hemorrhage, and in the end we came to the conclusion that the case was probably encephalitis. I think Dr. Stanley Cobb called my attention to a similar case in which there was quite an extensive hemorrhage, and which finally they concluded was encephalitis. So that there is the possibility that with encephalitis there may be associated a more or less extensive hemorrhage.

#### CASE 11203

#### SURGICAL DEPARTMENT

A Newfoundland housewife of thirty-five entered October 19 complaining of jaundice of three weeks' duration. She gave a history of an attack of rheumatism at fifteen. For many years she had had dyspnea on exertion. At twenty-eight she had influenza. She had lost two children, one a premature "blue" baby, the other possibly a case of placenta praevia. Six months before admission she had a second attack of rheumatism. After this attack she took six tablets of Weldon daily from May to September, at least ten boxes of sixty tablets each. The rheumatism was not relieved until two months before admission. Her bowels were always constipated.

Six weeks before admission she began to have pain in the epigastrium and right upper quadrant varying from grumbling discomfort made worse by food to intense pain comparable to the first stage of labor. She also had general malaise, headache and nausea. There were about ten severe attacks of pain, the worst occurring one morning just after she got up, doubling her up, radiating to the right shoulder, and lasting an hour. Three weeks before admission she began to have jaundice which very rapidly deepened to an intense yellow. Her urine became mahogany colored and her stools clay colored. Her chronic constipation became worse. She had been in bed for three weeks. Several times she had complained of palpitation, which she had

never had before, though her heart "had always been weak." Since the onset she had had vertigo and cough. A week before admission the jaundice cleared slightly for a few days, then became more intense than ever. During the past week she had had a great deal of vomiting and anorexia. For three days she had been drowsy, dull and confused, with slow, thick speech, and had complained of periods of blindness. For the past few days she had had a rash.

Examination showed a very weak, not entirely conscious, under-nourished young woman with evidence of loss of weight. There was deep yellow pigmentation of the skin and sclerae. Over the sternum and back was a papular eruption. The breath had a cholemic odor. Many teeth were missing. The lower incisors were bridged. The heart showed no enlargement. A presystolic roll heard loudest at the apex was present over the whole lower precordia. The first sound was very sharp. The pulmonic second sound was equal to the aortic second. The pulses and arteries were normal. The blood pressure was 140/85. The lungs, which were examined under difficulties, showed no gross abnormalities. The liver dullness began at the fifth rib, was complete in the sixth space, at the eighth rib became tympanitic. The edge was definitely palpable below the twelfth rib. Posteriorly the liver dullness was obscured by partial resonance. The knee-jerks were very active. There was poorly sustained bilateral clonus. The pupils were normal.

Before operation the temperature was 96° to 99°, the pulse 65 to 80, the respiration normal. The urine was bile stained, the specific gravity 1.018, the bile test very strongly positive, the slightest possible trace of albumin, occasional leucocytes. The hemoglobin was 80 per cent., the leucocytes 5,800, the reds normal. The bleeding time was three minutes, the clotting time seven, nine, ten, twelve, and twelve minutes. The serum dilution was 1:200. The blood sugar was 84 mgm. No Wassermann is recorded. The non-protein nitrogen was 29 mgm., the urea nitrogen 12.

A surgical consultant offered operation because he felt that a surgical condition could not be excluded, although he himself believed that another condition was present. October 20 operation was done. After it the patient remained in about the same condition except that the drowsiness increased the next morning to coma from which she could not be roused. About 200 c.c. of normal appearing bile drained. She did not retain tap water. She was given two subpectoralis of 2000 c.c. The day after operation the liver dullness was only about 4 cm. in the mid-clavicular line. Her condition became steadily worse, her pulse small and of low tension. The drainage became scant and very dark colored. October 22 the temperature rose to 103.1°, the pulse to 138, the respirations to 40, and she died.

## DISCUSSION

BY DR. EDWARD L. YOUNG, JR.

It is true that discomfort in the biliary tract, even moderate pain, may come in cirrhosis, but I think it is unusual to have pain which is as severe as this due to a hepatitis or cirrhosis alone. From their description of the attack I think anyone seeing her during it would say that she was having biliary colic due to cholecystitis from a mucous plug or a stone. However, those first attacks should not have been due to stone in the common duct because there was no suggestion of jaundice with them, though a stone in the common duct can cause pain without jaundice.

The breath may have had a "cholemic odor," but I am "from Missouri." We used to hear of acidotic and uremic breaths, and here we have a "cholemic" breath. I do not doubt that it was not normal, but I would defy the person who described it to recognize it again.

The serum dilution showed a very considerable degree of absorption.

Here is a case to compare with the one we have just been discussing. There was a slight remission in this case, not so great. The jaundice was much more marked. The symptoms of toxemia apparently came on a little more rapidly. The one thing here that suggests a surgical possibility is the attacks of intense pain. My feeling would be that that was not a common thing in any type of hepatitis. Is that so, Dr. Cabot?

DR. CABOT: I think so. I do not remember any such attacks as that.

DR. YOUNG: It is true that the one or two cases of the rare biliary cirrhosis that we have discussed here have been operated on for gallstones because of pain, but that is a rare condition. I do not remember this amount of pain with either acute yellow atrophy or cirrhosis. There is marked jaundice. There are the constitutional symptoms of the toxemia, and if we can believe the percussion, a somewhat diminished liver area. We have none of the other conditions that the other case had pointing toward cirrhosis, such as fluid and the vomiting of blood.

It seems to me that we have to offer this woman an operation on the basis of human fallibility if nothing more, because if this is a case of yellow atrophy the prognosis is absolutely hopeless, and if there is a surgical condition, a stone impacted in the common duct, causing this intense jaundice, the only hope of relief is the removal of the obstruction. Apparently the appearance of the patient did not suggest to the surgeon who saw her that there was a surgical condition, but he apparently felt as we do that it could not be excluded and offered operation.

Acute yellow atrophy is my first diagnosis, but I cannot explain the pain; the second of course

is the obstruction, and that is the basis on which they operated.

## DR. YOUNG'S PRE-OPERATIVE DIAGNOSIS

Acute yellow atrophy.  
Obstructive jaundice.

## PRE-OPERATIVE DIAGNOSIS

1. Acute yellow atrophy.
2. Obstructive jaundice.

## OPERATION

Under local novocain a ten centimeter incision was made over the upper end of the right rectus muscle. The abdominal wall was deeply stained with bile. Good exposure of the liver and the gall-bladder region was obtained. The liver presented with a thin sharp margin, greatly atrophied. The gall-bladder was slightly thickened and edematous. The pancreas, stomach, duodenum and right kidney were negative. The liver was pale yellow. Although there was no evidence of gall-stones or obstruction it seemed well to provide drainage in view of possible obstruction of the cystic duct. A catheter was tied into the common duct. One cigarette wick. Usual closure.

## FURTHER DISCUSSION

In other words they found no surgical condition which could be relieved, and did find the appearance of the liver which apparently means acute yellow atrophy.

I should say this amount of drainage is a little unusual at this stage of acute yellow atrophy. That is nearly seven ounces. Following the first twenty-four hour drainage after the removal of a stone the drainage often is not so much as that.

Unless Dr. Richardson finds something in the cystic duct I do not believe we are going to get anything in explanation of that pain.

Dr. CABOT: Why could not they themselves make sure about the cystic duct by palpation?

Dr. YOUNG: If they were able to put a catheter into the common duct it seems to me they should have been. Don't you think that was quite a lot of drainage for this stage of acute yellow atrophy?

Dr. CABOT: I should suppose so.

Dr. RICHARDSON: Acute yellow atrophy livers can still produce bile. We should remember that in acute yellow atrophy there is some liver tissue still left and at times islands of regeneration, and the bile ducts are one of the prominent things in the section surfaces.

Dr. YOUNG: It is better to have liver cells produce bile.

## CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Acute yellow atrophy.  
Choledochostomy for possible obstructive jaundice.

## DR. EDWARD L. YOUNG'S DIAGNOSIS

Acute yellow atrophy.

## ANATOMICAL DIAGNOSIS

## 1. Primary fatal lesion

Acute yellow atrophy of the liver.

## 2. Secondary or terminal lesions

Icterus.

## 3. Historical landmarks

Choledochostomy.

Dr. RICHARDSON: The incision in this case was restricted to the abdominal wall, so we know nothing about the thoracic organs. The abdomen was not distended, the wall was soft. The cavity contained 200 c.c. of thin brownish fluid. The conjunctivae and skin showed well-marked icterus. The peritoneum and appendix were negative and the gastro-intestinal tract generally negative.

The liver was three cm. above the costal border. It weighed 780 grams,—very small. It was a fairly symmetrical organ, the surface smooth, the tissue made up of smaller and large amounts of golden brownish rather soft tissue fading out towards the periphery into a dark red, homogeneous, rather leathery tissue, this tissue saturated with bloody fluid more or less, a thin sharp edge, some fine wrinkling—altogether a typical picture of yellow atrophy of the liver. The microscope confirmed that diagnosis.

The gall-bladder showed a small amount of dark-colored rather thick bile. The mucosa was negative. The cystic and hepatic ducts were negative. The common duct presented a small operation wound. The duct was free and the mucosa negative. This duct was if anything a little small.

Dr. YOUNG: If we are to believe that all those symptoms came from yellow atrophy we know more things it can do than we did before.

## GIFT ASSURES NEW CANCER INSTITUTE

A gift of \$250,000 from Mrs. George Chase Christian to the University of Minnesota has made possible a Cancer Institute and Hospital.

The Institute will be in addition to the present university hospital, the staff to be composed of members of the clinical and laboratory staffs of the medical school. According to the announcement, there will be fifty beds, for three types of patients: (1) charity patients; (2) patients who can afford to pay their hospital bill, but are unable to pay professional services, and (3) patients who will pay professional fees as well as hospital charges. The equipment includes the best surgical apparatus, deep X-ray therapy equipment and an emanation plant with a gram of radium element and an additional 100 milligrams of the salt.—*The Nation's Health*.

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## THE LAW AND MEDICAL ADVERTISEMENTS

THE Editors of the JOURNAL frequently receive from subscribers newspaper clippings which advertise some obviously fraudulent patent medicine. The fact that newspapers of standing continue to carry such trash is deplorable, but apparently reform must come from within.

A recent example of the difficulty of securing legal action against the manufacturers of such nostrums is given in the 1925 report of the New Hampshire State Board of Health, Division of Chemistry and Sanitation, and is so pointed a commentary upon the situation that we reproduce it herewith:—

"The most important case of local interest under the Federal Food and Drugs Act occurring during the period involved the trial at Concord of a libel for condemnation entitled 'U. S. vs. 11 packages of B. & M. External Remedy,' the latter being a preparation manufactured by the National Remedy Company, Boston, Mass. As this case, which resulted in a verdict for the claimant, is of far-reaching interest and importance in its bearing upon the proprietary remedy industry and the principle of home medication for serious ailments, it is here discussed in some detail. An exposition of the facts involved, together with the court's charge to the jury in

full, will be found under N. J. 11671, published in Service and Regulatory Announcement 164, January 5, 1924, and obtainable free of charge upon application to the Bureau of Chemistry, Washington.

"This preparation, which is intended exclusively for external application and which is claimed to accomplish its effects upon the diseased internal organs by 'striking through' directly from the outside, was found by the Bureau of Chemistry to consist of an emulsion containing turpentine, ammonia, salicylic acid, formaldehyde, aconite, a cyanogen compound (presumably hydrocyanic acid), balm of Gilead, wild cherry, albumen and water. Samples exhibit an overpowering odor of ammonia and turpentine.

"According to the claims upon the label and appearing in the booklet at the time of the trial, it was held out as a remedy for 'tuberculosis, pneumonia, laryngitis, bronchitis, pleurisy, la grippe, asthma, hay fever, coughs, colds, catarrh, rheumatism, lumbago, neuralgia, neuritis, peritonitis, neurasthenia, locomotor-ataxia, varicose veins, blood poisoning, autointoxication, sprains, scalds, burns, swellings and stiff joints. Eradicates tubercle bacilli from the lungs, glands or joints. It destroys the germs and prevents the further development of throat and lung troubles. A bottle within easy reach is a perfect safeguard against pneumonia. Will relieve headache in a few moments. Gives immediate relief and speedy recovery in rheumatic fever.' In addition the booklet also mentioned indigestion, scarlet fever, diphtheria, whooping cough, mumps, goitre, sarcoma, and boils.

"Since this action was instituted the company has added to the above imposing list references to the efficacy of this truly versatile remedy in the treatment of diabetes, Bright's disease, inflammation of the bladder, and cancer. One person testified to having been brought around by B. & M., notwithstanding a 'urine heavily loaded with sugar and more than 50% albumen' (!), with 'prognosis by two physicians, death within forty-eight hours.'

"The outstanding claim made for this preparation, and the one undoubtedly chiefly influencing the bringing of action by the federal authorities, is that it will cure tuberculosis. It has long been understood that competent and reputable medical authorities are agreed that no drug or combination of drugs alone will cure this disease. Apparently, however, the medical profession is in error in this respect. Instead of wasting time and money in expensive sanatorium treatment, all that is necessary, according to this finding, is the purchase and application of a few bottles of B. & M. in order to get well at home.

"At the trial expert medical testimony was presented to the effect that 'by no possibility could these drugs, either singly or in a mechanical mixture or chemical compound,' exercise such a curative effect. The claimant, however,

introduced witnesses who testified that they had had this or some of the other diseases mentioned and that they had become cured through the use of B. & M.

"In his charge to the jury the court made it clear that under the language\* of the federal statute it was not enough to show that the curative claims were false but that the jury, in order to find for the Government, must also be satisfied that these were not made in good faith by the claimant and that there was intention to deceive. 'If the claimant honestly believed the statements complained of to be true, the verdict must be for the claimant, and the question is not what a physician or chemist would believe, but it is a question of what the National Remedy Company, acting through its officers and agents, did believe.' The court also very pertinently pointed out to the jury that 'the authors of the testimonials may have been deceived as to the nature of the disease from which they suffered, or as to the effects of the treatment. They may have been on the road to recovery before the remedy was used.'

"As was to be expected, the company at once made full use of the verdict as rendered in its favor by a New Hampshire jury, not only in extensive advertising but in prominent reference thereto in the initial pages of the booklet which it issues, upon the cover of which is depicted two young women upholding the motto of 'Hope.' No unimportant feature of this booklet is a number of italicized paragraphs distributed through the latter and representative of remarks favorable to B. & M. purporting to have been made by the Court from the bench. While the origin of most of these is clearly attributed to the presiding justice of a municipal court in another state, before whom an earlier case against this company was brought, yet from the context it would be liable to appear to the ordinary reader that one of these favorable statements herein used as a testimonial utterance was that of the federal justice at Concord, presumably as a part of his charge to the jury. Of course no such statement was made or could have been made by this court within the hearing of the latter.

"Obviously, the National Remedy Company can possess no monopoly of the right thus secured to hold out to the public a cure for tuberculosis based upon drugs alone. The field is an open one and the harvest richly promising. In the course of a year many persons, disheartened in their attempts to win a livelihood through the more humble pursuits, visit this office apparently imbued with the idea that the practice of the healing art through the preparation and distribution of some remedial compound will, by helping others as well as themselves, offer a happy as well as a lucrative way out. And so long as human nature continues to be what it is, perhaps these may not be far wrong."

\*That of the corresponding New Hampshire law differs therefrom and probably does not have this effect.

It is a simple matter to prove that the claims advanced by the manufacturers of patent medicines are false but to prove that they are also fraudulent—that is, made with the purpose of deceiving—is another matter. In practically every case prosecuted under the Federal Food and Drugs Act in which the defendant contested the government's action, the government has lost because of the words "and fraudulent." Until we secure a method of mind-reading which will enable us to demonstrate to the court's satisfaction a fraudulent purpose behind human action, this otherwise valuable law might as well be removed from the statutes.

#### THE PRICE WE PAY

DURING the year of grace 1924 over a thousand cases of smallpox occurred in Detroit, Michigan, with 119 deaths. The epidemic was brought to that city from Canada by a man seeking work. In the course of his travels he had visited a number of communities and left in a number of them smallpox in his wake. He finally landed in a hospital, not because of illness, but because of an injury to his leg, and it was there that he was found to be suffering from the disease. The epidemic in Kansas City of 1922 is now past history, as must also be the recent prevalence in several western states. England, which contains a conscience clause in its compulsory vaccination law, has had an epidemic since the war, and a vaccination enforcement law with a loophole for conscientious objectors is about as valuable as a watchdog with no teeth and no bark.

For the first time in years the Atlantic seaboard has cause for considerable alarm. At the time of writing Philadelphia is playing unwilling host to a visitation and Washington has had at least 54 cases with 19 deaths. Pittsburgh has recently had 55 cases with 11 deaths, and cases are being reported from Pawtucket. Massachusetts has at last been invaded for on April 18 a case was taken off a revenue cutter in Fairhaven. This man had just returned from a two weeks' leave in New Bedford. No cases have as yet appeared in New Bedford where very active vaccination has been going on. During the last few days a second case has been reported from North Attleboro. Fire cannot burn without fuel and smallpox cannot prevail without a proportion of unvaccinated persons in the population. This fuel the opponents of compulsory vaccination have taken every pains in their power to provide, and in many states their efforts have been crowned with a very fair degree of success. Today's lesson is not for the anti-vaccinationists, however; their ears are always deaf to logic and their minds closed to reason, and if, as we have a right to assume, they are unvaccinated, a

smallpox epidemic will dispose of many of them.

It is to the other readers of the JOURNAL—the physicians of Massachusetts—that it is our duty to make an appeal. Smallpox has never and can never flourish where universal vaccination is employed. Smallpox, however, is no respecter of law and cannot be debarred, like true aliens, by legislation. Massachusetts has retained on her statute books a law providing for the compulsory vaccination of children attending public schools, and in most communities this law is obeyed. The law does not provide for the vaccination of every individual in the commonwealth.

As a protection against smallpox successful vaccination is far more efficacious than is legislation, and successful vaccinations can be provided by the physicians of the state, unsuccessful as they are in securing legislation. Every one of us should not only vaccinate but should preach vaccination persistently, vigorously, earnestly. If any physician has in his practice a patient who has not been vaccinated and on whom vaccination has not been urged he is derelict in his duty. We should go farther than this; we should impress on all our patients, particularly in a time like the present, the necessity for revaccination and recent vaccination.

#### HIGHWAY SIGNS SHOWING IMPROPER WATER SUPPLIES

THE Public Health Reports of the United States Treasury Department have announced that the Minnesota State Board of Health has arranged for the posting of signs on highways in the municipalities in that State informing the travelling public relating to the quality of the water supply of the particular city or town. It appears that whenever municipalities ask for a rating that the State will examine the water supply and if found to be of proper quality will give authority to exhibit signs showing that the water supply is free from danger.

Under the present conditions, with the growth of automobile travel and the custom of camping by the roadside, this is a very useful procedure and will be appreciated by all who find it necessary to use public water supplies.

It would undoubtedly add to the general health of people who travel in this manner if all States would follow this custom.

#### A BETTER RECORD

It may be recalled that the Council requires a revision of the list of members of the Massachusetts Medical Society entitled to receive the JOURNAL after March first of each year.

In 1923, 511 members were dropped because of non-payment of dues, in 1924 there were 453 delinquents, but in 1925 the number was re-

duced to 405. This means that financial conditions among our members are better or that there is a more general interest in the affairs of the Society.

Even the failure of the 405 to meet the annual dues does not mean disloyalty to the Society because a very large proportion pay soon after finding that they are in arrears.

Probably very few organizations of over four thousand members have a better record of paid dues. Many delinquencies are undoubtedly due to the absorbing demands of medical practice rather than to intent.

We congratulate our Fellows and hope that each year will show a better record.

#### MISCELLANY

#### GRADUATE STUDY AT SIMMONS COLLEGE

SIMMONS COLLEGE has recently published a brief bulletin on opportunities for graduate study at the College. Of special interest is the program in laboratory procedure offered by the Department of Biology and Health in co-operation with the Massachusetts State Department of Health and the Boston Dispensary Laboratory. The student spends a school year at Simmons in the School of Science, followed by thirty-two weeks in the Hospital Laboratory, the State Bacteriological Laboratory, the State Vaccine and Serum Laboratory and the Wassermann Laboratory. Finally the student devotes ten additional weeks to a thesis. The program leads to the Master of Science degree.

This course is of exceptional interest because of the unique co-operation between official and private health agencies and an educational institution. Its graduates will have a broad training in science and a working knowledge of all the important technical procedure in hospital and health laboratories and should, therefore, qualify for more than routine responsibilities.

#### EXTRACTS FROM REMARKS MADE AT THE DEDICATION OF THE COLORADO STATE HOSPITAL AND SCHOOL OF MEDICINE ON JAN. 23, 1925, BY PROF. W. S. THAYER

"THE multiplication of scientific methods of investigation has not transformed; it has broadened the art of medicine. In so doing, it has not diminished: it has increased the duties and the responsibilities of the practitioner, who, today, must have a much better general and special education than forty years ago.

"Today the practitioner must, as ever, have a sufficient knowledge of the strictly fundamental medical sciences—biology, anatomy, physiology, bacteriology, serology, pharmacology. But to understand these and appreciate the signifi-

cancer of, if not actually to carry out himself, a large number of diagnostic and therapeutic procedures, he must have no inconsiderable knowledge of mathematics, of modern physics and chemistry, inorganic, organic, physical.

"And that which should never be forgotten, but sometimes is forgotten—*this larger scientific basis saves not one hour of the necessary training and experience in the art of physical diagnosis and in the study of disease at the bedside, of that sympathetic contact with suffering men and women through which alone efficiency in the art of medicine can be attained.*

"Not all the chemistry and physics in the world can make a good diagnostician or a good practitioner or a good teacher of him who is not at home by the bedside."

#### DANGER OF SO-CALLED PURE GERMAN ALCOHOL

The daily papers have reported that methanol, a German product, is pure alcohol and can be sold at 26 cents a gallon.

Dr. Eugene R. Kelley, Commissioner of Health for Massachusetts, is reported to have issued a warning statement to the effect that by advice of the experts in his Department he condemns this product as poisonous and capable of causing blindness just as readily as the so-called wood alcohol.

One of the daily papers reported that this product had all of the alluring qualities of grain alcohol and that it might not come under the restrictions of the Volstead Act. Dr. Kelley has blighted the hopes of those who are looking for relief from present alcoholic scarcity and expense.

#### BOSTON LYING-IN HOSPITAL

The Trustees of the Boston Lying-in Hospital have issued the subjoined appeal for contributions:

The year 1924 for the Boston Lying-in Hospital was the busiest of its ninety-two years' service, and expenses naturally increased, not only on account of extra service rendered but because of higher running cost under present conditions.

One-third more patients were admitted to the Hospital than during 1923, the number being 1,739, while the Clinic cases increased from 3,196 to 3,909 and the visits of patients to our Clinics from 9,912 to 12,979. There were also 12 House Physicians and 196 Medical Students who availed themselves of the Hospital training, and 104 Nurses were graduated.

The Charity is limited, not because the Hospital is not qualified, not because more work is not needed, but only by what the Hospital has to spend. For this it largely has to depend upon its many kind friends who have been so gener-

ous for nearly a century, and although some patients can, and do, pay as they should what they can, there is now a deficit every year.

The second year's occupancy of our new Hospital on Longwood Avenue has proved its value and shows that in all respects it is nearly perfect. All those who have visited it from distant cities are unanimous in their praise and say they have never seen any better Maternity Hospital.

The Trustees are deeply grateful to the Hospital's many friends without whose help its good work could never have been accomplished, and ask that donations may be continued and, if possible, increased. They also hope new donors may be obtained.

If those wishing copies of the Annual Report will kindly indicate same on enclosed slip, it will be mailed as soon as printed.

Contributions may be sent to James R. Hooper, Treasurer, No. 87 Milk Street, Boston, Mass.

#### MEDICAL PROSPECTS ABROAD

THE medical profession in Austria is in a bad way. A considerable number of physicians have given up practice and have become book agents, and representatives of chemical, pharmaceutical, and surgical manufacturing firms. One has become a street cleaner. During 1924 five committed suicide from financial stress. In the cities contract practice is the rule; there are very few private patients. In the country the conditions of life are so primitive, and offer so few advantages, social and educational, that the younger physicians avoid them. In Vienna there is one physician to 450 persons; in the country one to 2,200 inhabitants. At present the average income of a city physician is from eighty to a hundred dollars a month, and many do not earn half that sum. Owing to the scarcity of money the public do not send for a physician unless absolutely necessary, and are often very slow in payment. The unusually mild winter—there has been no snow as yet—has been favourable to health, and the type of measles has been exceptionally mild. Influenza is entirely absent this winter owing probably to the dryness and sunshine. The more equal distribution of medical men throughout the republic, in the present state of finance, is difficult of attainment; but the most hopeful outlook is presented by some scheme of subsidising the medical profession, either by the State, or by the rural community. The same lack of country physicians, though due to quite different causes, is present in the United States, and the remedy there is probably similar—subsidisation.—*The Medical Press & Circular.*

#### CORRECTION

OUR reporter who stated in the report of the Annual Meeting of the Massachusetts Tuberculosis League, which appeared in the May 7th

issue of the JOURNAL, that Dr. George I. Lee is Vice-President, was in error. Dr. Roger I. Lee is the Vice-President.

### RECENT DEATH

**CANEDY.**—Dr. CHARLES FRANCIS CANEDY died at the Franklin County Hospital, Greenfield, following an operation for appendicitis, May 5, 1925, at the age of 48.

He was born in Shelburne Falls, January 16, 1877, and was educated at Arms Academy and at Williams College, where he received his A.B. in 1896, and at Harvard Medical School, taking his degree in 1900 and serving as house officer at the New Haven Hospital. He settled in practice in Greenfield, where he was attending physician to the Franklin County Hospital, and was associated with Dr. H. G. Stetson and Dr. G. P. Twitchell in their clinic. He was married in 1924 to Miss Apt, a nurse, who survives him.

### OBITUARIES

**DEATH OF SIR RICKMAN GODLEE, BART., K. C. V. O., F. R. C. S. ENG., M. S. LOND.**

SIR RICKMAN JOHN GODLEE died somewhat suddenly on April 20th. He was a nephew of Lister and wrote his life, and, like him, came of old Quaker stock.

Rickman Godlee was born at Upton, Essex, on February 15th, 1849, and was thus 76 years of age. He took his degree in Arts in 1867 at the University of London before he began his medical education. He then entered University College and at once distinguished himself as an exquisite draughtsman. He was chosen to make the original drawings for the plates of Quain's "Anatomy." These drawings he presented to the Royal College of Surgeons of England in 1920. They are now preserved in the library. He became a member of the Royal College of Surgeons in 1872, and was elected to the fellowship in 1876. In the meantime he had taken the degrees of Bachelor and Master of Surgery at the University of London, after winning the gold medal at each examination. After being house surgeon at University College Hospital, he went to Edinburgh to study the new methods introduced recently by his uncle. On his return to London he was made surgical registrar at University College Hospital and in 1877 was elected assistant surgeon and was appointed assistant demonstrator of anatomy in the medical school. He became surgeon to the Brompton Hospital. At the Hospital for Epileptics in Regent's Park, London, Godlee performed one of the earliest operations for the removal of a tumor from the brain. At University College Hospital Godlee became surgeon, and eventually consulting surgeon; while in University College he was made Emeritus Professor of Clinical Surgery.

At the Royal College of Surgeons he filled all the usual offices, until he was elected President for the years 1911-13, in succession to Sir

Henry Butlin, who died during his tenure of office. He was surgeon to the Household of Queen Victoria and was Surgeon in Ordinary to King Edward VII and to King George V. He was created a baronet in 1912 and was made K. C. V. O. in 1914.

Rickman Godlee was a skilful surgeon and a fine artist, and was also a linguist, a carpenter, a poet, a botanist, an ornithologist and an oarsman. He was a remarkably cultured man with a great knowledge of books. He was honorary librarian of the Royal Medico-Chirurgical Society, and of its successor, the Royal Society of Medicine. He was a member of the Burlington Fine Arts' Club and of the Athenaeum. He was closely connected in practice with his uncle, Sir Joseph Lister, and as a young man was usually left in charge of the patients on whom Lister had operated in private.

Godlee had the greatest veneration for his uncle and no one but him could have written Lister's Life. He had access to his letters and papers, and from his personal recollections could reconstruct the life of Lister who lived as did the members of the Society of Friends. Godlee himself was a typical Quaker and throughout his life did credit to his upbringing. He was a quiet reserved man with a somewhat sarcastic tongue.

### HENRY B. STEVENS, M. D.

In the death of Dr. Henry B. Stevens, Ophthalmic Surgeon-in-Chief to the Boston City Hospital, the professional staff suffers a severe loss. During his career as a house officer and following this, during his work as a general practitioner and later as an ophthalmic surgeon, Doctor Stevens brought to his professional duties an ability of a high order combined with a humility and sincerity most unusual. No physician ever endeared himself more to his patients and he was ever ready to lend a helping hand to all the needy. No man could be associated professionally or otherwise with Doctor Stevens without an uplifting in his own character and aspirations. In his early career, when called upon to assist others, he was ever mindful of them, and later, when he became Chief and required the assistance of others, he treated them in the same kindly spirit. At times handicapped by a lack of physical vigor, he yet made up for this by forcing himself to work to the limit of his strength; and many times, in the carrying on of his hospital services and the caring of the needy, he even worked beyond his strength.

When the war cloud appeared, he was one of the first to offer his services, and, being rejected on account of physical disability, he underwent a major operation to remove this disability; and after this, at great personal sacrifice, he entered the Service as a captain in the medical corps and

was assigned to Camp Devens as an ophthalmic surgeon.

The community as a whole has suffered a loss, as it always does in the passing of a true, Christian gentleman, and few men more rightly deserve the title than Doctor Stevens. We, his associates, who appreciate his sterling qualities, and those of us who knew him more intimately in his family life, extend to his immediate family our deepest sympathy.

The Boston City Hospital,

May seventh,

Nineteen hundred and twenty-five.

## CORRESPONDENCE

### AMERICAN MEDICAL ASSOCIATION

#### COUNCIL ON PHARMACY AND CHEMISTRY

*Editor, Boston Medical and Surgical Journal:*

In addition to the articles enumerated in our letter of March 28, 1925, the following have been accepted:

Cook Laboratories—

Streptococcus Vaccine X Plain  
Acne Vaccine (Cook) Combination X  
Typhoid Vaccine X Plain  
Typhoid Vaccine XX Combined  
Whooping Cough Vaccine (Cook) X Plain  
Staphylococcus Vaccine Combined.

Cutter Laboratories—

Rabies Vaccine (Semple)—Cutter.

Eastman Kodak Company—

Resorcinol Monoacetate.

Hille Laboratories—

Lunosol: Lunosol Capsules, 6 grains.

Hynson, Westcott & Dunning—

Brom-sulphalein—H. W. D.:  
Solution Brom-sulphalein—H. W. D.

Eli Lilly & Co.—

Scarlet Fever Streptococcus Antitoxin (Unconcentrated)  
Scarlet Fever Streptococcus Antitoxin (Concentrated).

H. K. Mulford Company—

Ash Tree Pollen Extract—Mulford; Bermuda Grass Pollen Extract—Mulford; Box Elder Pollen Extract—Mulford; Canary Grass Pollen Extract—Mulford; Cocklebur Pollen Extract—Mulford; Corn Pollen Extract—Mulford; Cottonwood Tree Pollen Extract—Mulford; Daisy Pollen Extract—Mulford; Dandelion Pollen Extract—Mulford; Dock Pollen Extract—Mulford; False Ragweed Pollen Extract—Mulford; Goldenrod Pollen Extract—Mulford; Johnson Grass Pollen Extract—Mulford; June Grass Pollen Extract—Mulford; Lamb's Quarters Pollen Extract—Mulford; Maple Pollen Extract—Mulford; Marsh Elder Pollen Extract—Mulford; Mountain Cedar Pollen Extract—Mulford; Mugwort Pollen Extract—Mulford; Oak Tree Pollen Extract—Mulford; Orchard Grass Pollen Extract—Mulford; Perennial Rye Grass Pollen Extract—Mulford; Plantain Pollen Extract

—Mulford; Redroot Pigweed Pollen Extract—Mulford; Redtop Pollen Extract—Mulford; Russian Thistle Pollen Extract—Mulford; Rye Pollen Extract—Mulford; Sagebrush Pollen Extract—Mulford; Sugar Beet Pollen Extract—Mulford; Sunflower Pollen Extract—Mulford; Sweet Vernal Grass Pollen Extract—Mulford; Walnut Tree Pollen Extract—Mulford; Western Ragweed Pollen Extract—Mulford; Wormwood Pollen Extract—Mulford.

Sharp & Dohme—

Caprokol (Hexylresorcinol—S. & D.).

Frederick Stearns & Co.—

Insulin—Stearns Single Strength  
Insulin—Stearns Double Strength  
Insulin—Stearns Quadruple Strength.

E. R. Squibb & Sons—

Lentil-Allergen—Squibb.

United States Standard Products Company—

Scarlet Fever Streptococcus Antitoxin—U. S. S. P.

Yours truly,

W. A. PUCKNER, Secretary,  
Council on Pharmacy and Chemistry.

### CITIZENS MILITARY TRAINING CAMPS

#### PHYSICAL EXAMINATIONS AND IMMUNIZING CANDIDATES

LETTER FROM SURGEON-GENERAL, U. S. ARMY

April 29, 1925.

Dr. Charles E. Prior,  
State Examining Board,  
144 State House, Boston, Mass.

My dear Doctor:

You are no doubt fully aware of the important part played by the C. M. T. Camps in the promotion of the present national defence plans. No national defence plan worthy the name can be carried to a successful conclusion without the whole-hearted support of the medical profession, and this is of course very true of the C. M. T. C. project. It is essential that all the young men admitted to these camps be physically fit, and whether they are or not can be determined only by a physical examination which is performed before they leave home, preferably by their own physicians. It is also important that all candidates for training be immunized to typhoid and paratyphoid fevers and smallpox in order to obviate all danger of epidemics in the camp and to afford protection against these diseases in the event of a national emergency.

It is desirable and indeed necessary that candidates for enrollment be examined and immunized without cost to the applicant. Arrangements have been made whereby this may be done at any Army, Navy, or Public Health Service station where medical officers are on duty, but it is impracticable to reach all applicants through these agencies. It is thought to be the patriotic duty of all medical men to assist in the operation of the C. M. T. Camps during peace as a part of their share in the defence of our country by physically examining and immunizing without charge such candidates for training—living in their communities—as may apply to them. I am writing to ask if you will be kind enough to bring this matter to the attention of the county societies of your State and urge each member to cooperate with the Federal government in this matter in so far as may be consistent with his other activities.

Very truly yours,

M. W. IRELAND,  
The Surgeon-General, U. S. Army.

## MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

DISEASES REPORTED FOR THE WEEK ENDING  
MAY 2, 1925

Chickenpox	113	Ophthalmia neonato-
Diphtheria	93	rum
		Pneumonia, lobar
Dog-bite requiring anti-rabies treatment	15	Scarlet fever
Encephalitis lethargica	2	Septic sore throat
Epidemic cerebrospinal meningitis	6	Syphilis
German measles	228	Suppurative conjunctivitis
Gonorrhea	74	Tetanus
Hookworm	2	Trachoma
Influenza	20	Tuberculosis, pulmonary
Malaria	2	Tuberculosis, hilum
Measles	1,079	Typhoid fever
Mumps	60	Whooping cough

CONNECTICUT WEEKLY MORBIDITY REPORT  
WEEK ENDING MAY 2, 1925

Diphtheria	28	Boutillism
Last week	24	Cerebrospinal men.
Diphtheria bacilli carriers	3	Chickenpox
Whooping cough	165	Encephalitis epid.
Last week	91	German measles
Scarlet fever	107	Influenza
Last week	81	Mumps
Typhoid fever	6	Pneumonia (broncho)
Last week	1	Pneumonia (lobar)
Measles	207	Septic sore throat
Last week	89	Tuberculosis (pul.)
Smallpox	2	Tuberculosis (other)
Last week	0	forms)

## NEWS ITEMS

After July 1st, Dr. Stanley Cobb, who has been abroad since 1923, will be located at the Harvard Medical School where he will continue to serve as Assistant Professor of Neuropathology.

## ELECTION OF DR. HORACE D. ARNOLD

The National Board of Medical Examiners, at its annual meeting in Washington on May 4, unanimously elected Dr. Horace D. Arnold President, for the ensuing year, to succeed General M. W. Ireland, who retired from this office.

Dr. Arnold was one of the original members of the National Board when it was organized in 1915, and is the first President from civilian life. Admiral William C. Braisted, Surgeon General of the Navy, was the first President and was succeeded by Surgeon General Ireland three years ago.

## FREE VACCINATION FOR BOSTON

Massachusetts has an enviable record of but one case of smallpox during the past year but other states were less fortunate. Because of the cases existing outside of Massachusetts, Health Commissioner Mahoney has decided that Boston should take precautions and has

arranged for the provision of free vaccination from 10 A. M. to 5 P. M. daily at the health units in North Margin and Blossom Streets. It is hoped that heads of industries and insurance companies will co-operate in the campaign for vaccination and they are being requested to do so.

## THE OFFICERS OF THE MASSACHUSETTS DENTAL SOCIETY

At the 61st annual meeting of this Society the following named officers were elected:

President, Dr. Harold W. Alden of Northampton; first vice-president, Dr. W. Vernon Ryder; second vice-president, Dr. Richard H. Norton; secretary, Dr. William H. Gilpatrick; assistant secretary, Dr. Frank H. Cushman; treasurer, Dr. Joseph T. Paul, and editor, Dr. E. Melville Quimby.

The Society endorsed the plan for an Academy of Medicine in Boston which will, if established, provide a medical center for the State.

## REPORTS AND NOTICES OF MEETINGS\*

A PHYSIOLOGICAL CONFERENCE will be held Thursday, May 21, in the Bowditch Library, Building C, Harvard Medical School, at 4 P. M. Dr. A. N. Richards, Professor of Pharmacology at the University of Pennsylvania, will speak on, "Miscellaneous Experiments on the Frog's Kidney."

## NEW ENGLAND HEART ASSOCIATION

THERE will be a meeting of the New England Heart Association at the amphitheatre of the Peter Bent Brigham Hospital, Thursday, May 21, 1925, at 8:15 P. M. Subject: "Clinical Experience with Hearts in Hyperthyroidism." Speaker: Dr. Burton E. Hamilton.

## AMERICAN NURSES' ASSOCIATION

THE fourth convention of the New England Division of the American Nurses' Association will be held June 3, 4 and 5 at Boston.

## WEST END NEIGHBORHOOD CONFERENCE

THE regular monthly meeting of the West End Neighborhood Conference will be held at the Health Unit, 17 Blossom Street, Friday, May 15, 1925, at 3 P. M.

A recreational summer program in our district with possible inclusion of play streets will be discussed and Miss Julia Murphy, Supervisor of Play Grounds, Boston School Department, will tell about her work, and possibilities of its expansion in our district will be taken up.

\*Notices of meetings must reach the JOURNAL office on the Friday preceding the date of issue in which they are to appear.

A very important report calling attention to the re-organization of the West End Advisory and other Committees of the Health Unit will be submitted.

At 3:45 P. M. Miss Hazel Wedgewood, Director of Nurses of the Boston Health Department, will speak on "Public Health Nursing." This very important topic ought to be appealing to everyone interested in our work in the West End and I trust you will make every effort to attend.

Very truly yours,  
CHARLES S. WILINSKY, M.D.,  
Secretary, West End Neighborhood Conference

THE BOSTON DISPENSARY  
25 Bennet Street

May 5th, 1925.

At a meeting of the Clinical Staff of the Boston Dispensary, to be held Tuesday, May 19th, 1925, at 1:00 P. M., Mr. Michael M. Davis, Jr., Executive Secretary of the Committee on Dispensary Development, New York, will speak on the subject:

"Pay Clinics: The need for, the development of, and the probable future of this type of medical activity in dispensaries and out-patient departments."

Anyone desirous of attending this meeting will be invited on application to the Secretary of the Medical Staff.

BENJAMIN E. WOOD, M.D., *Secretary.*

THE LAWRENCE MEDICAL CLUB

THE Monthly Meeting of the Club was held Monday evening, April 27, with F. A. Conlon, M.D., at his residence, 482 Lowell St., Lawrence. Chairman for the evening, E. P. Fuller, M.D. Subject: "Self Assertion," Judge Louis S. Cox of the Massachusetts Superior Court.

THE NEW HAMPSHIRE SURGICAL CLUB

THE New Hampshire Surgical Club met at the Elliott Hospital, Manchester, New Hampshire, on April 20, 1925. The morning was given to a surgical clinic by the staff of the Elliott Hospital and the afternoon to literary exercises. The operations in the forenoon were as follows: The first was a supravaginal hysterectomy by Dr. George C. Wilkins, for persistent dysmenorrhea; the second, a thyroidectomy for exophthalmic goitre by Dr. David W. Parker. In both of these operations several interesting points in technique were brought out. The operations proceeded with neatness and dispatch. Dr. John F. Holmes then performed two blood transfusions by the Unger method, using one adult donor for transfusion into two children, one of them a marasmic baby and the other a boy who need-

ed transfusion for anemia probably due to tuberculosis. The jugular vein was used for the insertion of the syringe in the baby and one of the arm veins in the boy. The demonstration gave a very favorable impression of the method. Dr. Ezra A. Jones then operated by manipulation for the correction of club-foot and for congenital hip disease. There were numerous cases shown.

Colin C. Stewart, Professor of Physiology in Dartmouth Medical School, read a paper on the "Physiology of the Thoracic Organs in Relation to Surgery," which was of great interest. He takes an encouraging view of the future of thoracic surgery. Then Dr. Richard D. Miller of Boston read a very interesting paper on "Diagnosis of Acute Abdominal Diseases." There was a general discussion of both of these papers. At the end of the meeting the Society voted to make the BOSTON MEDICAL AND SURGICAL JOURNAL the official organ for the publication of its papers.

UNITED STATES CIVIL SERVICE  
EXAMINATION

THE United States Civil Service Commission announces the following open competitive examination:

ASSOCIATE MILK SPECIALIST

Receipt of applications for associate milk specialist will close June 2. The examination is to fill a vacancy in the Public Health Service for duty in the field, and vacancies in positions requiring similar qualifications.

The entrance salary for this position in the District of Columbia is \$3,000 a year. Advancement in pay may be made without change in assignment up to \$3,600 a year. For appointment to the Field Service the range in salary will be approximately the same, but appointment need not necessarily be made at the minimum rate of \$3,000. For the present vacancy in the Public Health Service the entrance salary is \$3,600 a year. Promotion to higher grades may be made in accordance with the civil service rules.

The duties of the position consist of advising State and city health departments in formulating and conducting milk sanitation programs; surveying milk sanitation status of States and cities, and research in subjects relating to the sanitation of milk production, handling, processing and transportation.

Competitors will not be required to report for examination at any place, but will be rated on their education and experience, and publications or a thesis to be filed with the application.

Full information and application blanks may be obtained from the United States Civil Service Commission, Washington, D. C., or the

secretary of the board of U. S. civil-service examiners at the post office or customhouse in any city.

#### AMERICAN ACADEMY OF PHYSIOTHERAPY

The American Academy of Physiotherapy will hold its mid-year meeting in the Hotel Morton, Atlantic City, N. J. on Monday, May 25, beginning at 9 A. M., and continuing on Tuesday, from 9 A. M. until noon.

On Monday the subjects presented will include: Gall Bladder Visualization and Drainage, Physiotherapy in Industrial Conditions, Backache, Physics in Medicine, Hydrotherapy, Tuberculous and Other Bone Lesions, and Diathermy as an Adjunct in the Treatment of Pneumonia.

Beginning at 3 P. M. the remainder of Monday's session will be devoted to a Symposium on Ultra Violet, opened by Professor W. T. Bovie of the Physiological Laboratory of Harvard and continued by Dr. Charles R. Brooke and Dr. Frank A. Davis.

The Tuesday morning session will be devoted to a Symposium on Electro-surgical Methods, participated in by Dr. Howard A. Kelly, Dr. William L. Clark, Dr. William D. McFee and Dr. George A. Wyeth.

#### NOTICE TO MEDICAL OFFICERS OF THE WORLD WAR

Under the auspices of the Association of Military Surgeons, a dinner will be held at the Ritz-Carlton Hotel, Atlantic City, at 7 P. M., Wednesday, May 27, for medical officers who served in the Army, Navy and Marine Corps during the World War.

General Ireland, the Surgeon-General of the Navy and the Surgeon-General of the Public Health Service will speak.

Dinner, \$5 per plate.

Get in touch with men of your unit and plan to come.

Reservations may be made by writing Dr. Charles T. Porter, 520 Commonwealth Avenue, Boston 17, Mass.

#### SOCIETY MEETINGS

##### NEW ENGLAND STATE MEDICAL SOCIETIES

The annual meetings of the New England State Medical Societies are scheduled as follows:

Connecticut State Medical Society—Bridgeport, May 20-21, 1925.  
Massachusetts Medical Society—Boston, June 23-26, 1925.  
Rhode Island Medical Society—Providence, June 20, 1925.  
Vermont State Medical Society—St. Johnsbury, Oct. 15-16, 1925.

#### BOOK REVIEWS

*Diabetic Manual.* By ELLIOTT P. JOSLIN. Lea and Febiger. Philadelphia and New York, 1924. Third Edition.

The subject matter contained in the first and second editions has been considerably added to and simplified with more emphasis laid on early detection of diabetes and immediate institution of treatment. The same valuable skeleton is still found, however, in this edition, and to this has been added a valuable chapter on Insulin in association with diet. With the increase of experience in the surgical treatment of diabetic complications, much has been learned about the

safety of operation and the importance of prophylaxis. The clear, simple style is still in evidence, with the result that this manual still retains its position as the first among many that have been published since the discovery of Insulin.

#### HANDBOOKS ON DIABETES

Since the introduction of insulin as a reliable remedy in the treatment of diabetes mellitus there have been published many manuals intended for instruction of the doctor and the patient—none of them differing widely one from the other in general principle. All have attempted to expose the nature of the disease in simple language, making such information accessible to the general practitioner and to the average intelligent patient. The mechanics of insulin administration are made clear, so that its use is made safe for all who will use care in studying any of these books.

Particularly suited to the needs of the patient are:

*"Diabetes and its Treatment by Insulin and Diet."* By ORLANDO H. PETTY, M. D.: F. A. Davis and Company, Philadelphia, Pa., 1924.

This handbook of 100 pages well defines diabetes, suggests possible cures, offers methods of prevention as well as outlining in detail the calculation of food values. It is not a scientific discussion of the disease, but a statement of facts that have become a matter of common knowledge among physicians.

*"Insulin in General Practice."* By A. CLARKE BEGG, O. B. E., M. D., Ch. B. M. B. Wm. Heinemann, Ltd., London.

The aim of this book is to provide a practical clinical guide to the use of insulin in general practice. The publication is based on the experience gained from the study of over seventy cases which the author has treated since insulin became available, and is written entirely from the clinical standpoint. The reader is impressed first of all by incomplete conclusions drawn from a very small series of cases, and next by a very definite looseness in presentation of the material. It is neither a hand book nor a reference book.

*"Management of Diabetes."* By GEORGE A. HANOP, JR., M. D. Paul B. Hoeber, Inc., New York, 1924.

A product of the Presbyterian Hospital, New York City—based upon a course of instruction given to 600 practicing physicians, extending from June to September, 1923. The book is neither too technical nor exhaustive, and should admirably suit the needs of the general practitioner, containing as it does a summary of our present knowledge of the disease and of methods approved for the use of insulin, adequate for the successful care of individuals suffering from diabetes. The section on recipes for diabetes should prove exceptionally useful.